

ZOOLOGICAL RESULTS

OF

THE SWEDISH ZOOLOGICAL EXPEDITIONS TO SIAM

1911—1912 & 1914—1915

V.

MAMMALS II

BY

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WITH SIX PLATES

COMMUNICATED JUNE 7TH BY HJ. THÉEL AND E. LÖNNBERG

STOCKHOLM
ALMQVIST & WIKSELLS BOKTRYCKERI-A.-B.
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The following pages contain an account of the Mammals obtained during my journey in Siam and the Siamese Laos States 1914—1915.

The whole journey lasted about 14 months, a considerable amount of which was spent in Northern Siam. With the exception of the collections presented to the British Museum of Natural History by Mr. T. H. LYLE very few specimens from Northern Siam have ever reached European Museums. Quite recently, however, the collectors of the Bombay Natural History Society's Mammal Survey have sent magnificent collections from some of the neighbouring countries such as Burma and Tenasserim and many novelties or rare species have been met with and recorded.

In my memoir on the Birds collected by the Expedition (Kungl. Svenska Vetenskapsakademiens Handlingar Band 56. No. 2, 1916) I have already given a short account of my journey and it therefore seems quite unnecessary to repeat it in this connection. The names of the places visited are to be found in that paper and the whole course of the journey may be traced on the map.

As the greatest time was spent in pursuit of birds, the mammal collection is not very large, but still it comprises 176 specimens. Together with the species observed it makes a total of 79 species. Among these a few have turned out to be new to science and have been described either as new species or as new geographical races of hitherto known forms.

In the following systematical list three species obtained during my former journey to Siam 1911—1912 have been included, though already dealt with in my former paper on the Mammals of Siam (Arkiv för Zoologi, Band 8. No. 23., 1914 p. 1—36). Since more material has now been available these species have either turned out to belong to hitherto undescribed forms or have been recently split up into new forms by other authors.

In the systematic list the following species and subspecies have been described for the first time:

Rhinolophus macrotis siamensis, subsp. n.

Tupaia siamensis, sp. n.

Paradoxurus hermaphroditus laotum, subsp. n.

Sciurus helgei, sp. n.

Sciurus bocourti grutii, subsp. n.

Menetes berdmorei koratensis, subsp. n.

Rattus sakeratensis, sp. n.

Cannomys minor lönnbergi, subsp. n.

Hylobates lar. LINN.

Plate I. Fig. 1.

♀ Doi Par Sakeng, Northwestern Siam, ¹²/₇ 1914. — ♂ Koon Tan, Northern Siam, ⁷/₆ 1914. — ♀ Koon Tan ¹⁹/₉ 1914. — ♂ Koon Tan ¹⁹/₉ 1914. — ♂ Koon Tan ²³/₅ 1914. — ♀ juv. Koon Tan ²³/₅ 1914. — ♂ juv. Koon Tan ¹⁹/₉ 1914.

Gibbons, belonging to this species, were fairly common among the mountain forests in the North of Siam. In the parts of the Siamese Malaya visited during my journey I also found them abundant on the Tenasserim boundary. At this latter locality they were, however, very shy and more often heard than seen. They are generally going about in small parties guided by an old male. Captured as a young they become very tame and are often kept as a pet both by the natives and by the European residents.

One of the female specimens shot at Koon Tan on the 19th of September had a small almost naked young twined round the breast. I tried to keep the poor little thing alive but it soon died.

The Siamese name is »Chanee».

Skull measurements	♀	♂	♂	♀
Greatest length	101,0 mm.	103,6 mm.	106,5 mm.	105,0 mm.
Basicranial length	73,0 »	72,5 »	79,1 »	81,6 »
Condylbasal length	82,0 »	84,0 »	84,0 »	87,0 »
Occipitonasal length	86,5 »	86,2 »	88,6 »	86,0 »
Zygomatic width	69,0 »	70,0 »	68,0 »	68,0 »
Width of brain case	67,8 »	69,0 »	69,0 »	67,5 »
Least postorbital breadth	48,2 »	46,0 »	44,0 »	44,2 »
Least interorbital breadth	12,5 »	10,0 »	11,1 »	11,0 »
Snout across last premolar	32,1 »	29,5 »	31,0 »	32,6 »
Front of canine to back of m ⁸	32,5 »	32,3 »	33,5 »	34,7 »
Length of palate mesially	38,1 »	40,0 »	38,2 »	42,0 »
Length of upper molar series	25,2 »	25,2 »	25,5 »	28,0 »
Length of lower molar series	30,0 »	30,7 »	30,2 »	31,5 »

Hylobates pileatus. GRAY.

Along the coasts of the Gulf of Siam another species of Gibbon is said to occur. I never myself met with this species in the wild state, but during my stay in Bangkok I was shown one specimen kept in captivity by the Swedish Consul General Mr. A. MOHR.

It was a typical specimen of *Hylobates pileatus* GRAY and belonged to the white phase. It was said having been captured somewhere down the coast, most probably in the Chantaboon Province.

During his recent journey to south-eastern Siam Mr. C. BODEN KLOSS also obtained several specimens (vide: Proceedings of the Zoological Society of London 1916 p. 29).

Presbytis obscura halonifer. CANT.

♂ Koh Lak Paa, near the boundary to Tenasserim $8/_{12}$ 1914. — ♀ Koh Lak Paa $7/_{12}$ 1914. — ♂ Koh Lak Paa, january 1915 (skull only) — 1 juv. Koh Lak Paa, january 1915 (skull only).

The northern mainland form of the Dusky Langur has been separated by CANTOR under the name of *P. halonifer*.

It was fairly common in the forests on the boundary between Siam and Tenasserim where several specimens were shot. It generally goes about in small parties affecting the higher trees in dense jungles. Like the other Langurs it is rather shy and by no means easy to obtain. It has a hoarse rather uncanny note which is frequently heard. When being disturbed in some way by the presence of man it has the habit of concealing itself among the foliage of the trees from which it then suddenly jumps, making a shot very difficult.

Along the coast of the Gulf of Siam several isolated limestone hills are to be found. Some of these hills are very precipitous and covered with a dense vegetation of ever-green trees. These hills seemed to be inhabited by another member of the *obscura* Group (vide infra).

Skull measurements	♂	♂	♂
Greatest length	101,0 mm.	99,5 mm.	93,9 mm.
Basiscranial length	72,3 »	70,0 »	65,7 »
Condylobasal length	79,0 »	76,0 »	71,2 »
Occipitonasal length	78,3 »	78,3 »	78,5 »
Zygomatic width	73,0 »	77,0 »	69,0 »
Width of brain case	61,0 »	60,0 »	57,2 »
Least postorbital breadth	41,2 »	45,0 »	42,0 »
Least interorbital breadth	8,5 »	9,0 »	8,0 »
Length of palate mesially	35,0 »	31,0 »	31,0 »
Length of upper molar series . .	24,6 »	26,0 »	23,2 »
Length of lower molar series . .	32,0 »	32,0 »	29,0 »
Length of upper toothrow from front of canine to back of last molar	31,2 »	32,3 »	29,2 »

Presbytis obscura flavicauda. ELLIOT.

Proc. U. S. Nat. Mus. vol. 38 1910 p. 352.

♀ Koh Lak, Siamese Malaya $4/_{12}$ 1914. — Nose to vent = 435 mm.; tail = 610 mm. — ♀ Koh Lak $29/_{11}$ 1914. — Nose to vent = 495 mm.; tail = 710 mm.

This species inhabits Peninsular Siam and southern Tenasserim.

During my stay at Koh Lak I obtained two specimens which I, though with some hesitation, have referred to the above-mentioned species, the type of which came from Trang.

The Langurs belonging to the *obscura* Group are very variable both as to size and colour, and without a large material to compare with the different forms are almost impossible to be properly recognized. In life the skin round the eyes and the lips are pure white.

Skull measurements	♀	♀
Greatest length	90,0 mm.	81,0 mm.
Basicranial length	64,0 »	54,0 »
Condylbasal length	71,2 »	62,0 »
Occipitonasal length	76,8 »	73,2 »
Zygomatic width	65,0 »	59,3 »
Width of brain case	57,0 »	55,0 »
Least postorbital breadth	43,0 »	42,2 »
Least interorbital breadth	8,3 »	6,0 »
Length of palate mesially	28,0 »	25,5 »
Length of upper molar series	24,0 »	22,0 »
Length of lower molar series	29,6 »	25,5 »
Length of upper toothrow from front of canine to back of last molar .	29,5 »	26,1 »

Presbytis crepuscula. ELLIOT.

Ann. & Mag. Nat. Hist. ser. 8. vol. IV. 1909 p. 270.

♂ Koon Tan, Northern Siam $\frac{2}{6}$ 1914. — Nose to vent = 395 mm.; tail = 530 mm.; ear = 35 mm.

This species seems to be somewhat rare in collections and in the British Museum there are only two specimens, both of which were obtained at the Mooleyit mountain in Tenasserim. During my former Expedition to Siam I obtained a single male specimen which was shot near the Meh Lem river in Northeastern Siam. During my last journey another male specimen was obtained some distance due west from the Meh Lem and at about the same latitude.

This specimen, though younger, is of exactly the same colour throughout. The skin round the eyes is bluish grey in life and the lips are white.

Skull measurements:

Greatest length = 85,0; basicranial length = 53,0; condylbasal length = 60,5; occipitonasal length = 75,0; zygomatic width = 57,5; width of brain case = 54,5; least postorbital breadth = 43,0; least interorbital breadth = 5,5; length of palate mesially = 23,7; length of nasals mesially = 11,3 mm.

Macaca irus. Cuv.

The Crab-eating Monkey was observed along the lower course of the Menam Chao Phaya River and in a mangrove swamp a few miles north of Koh Lak in the Siamese

Malaya. No specimens were obtained, and I have nothing further to add about their habits besides what I have said about that species in my former paper on the Mammals of Siam (vide Arkiv för Zoologi, Band 8. No. 23. 1914 p. 3—4).

Macaca andamanensis. BARTLETT.

Plate II. Fig. 3.

♂ Koon Tan, Northern Siam $\frac{7}{8}$ 1914. — Nose to vent = 530 mm.; ear = 40 mm.

The specimen obtained, which was shot by one of my native collectors among the mountains at Koon Tan, is not quite fullgrown, the last molars having not quite broken through though they are clearly visible. The horse-shoe shaped crest, so conspicuous in this form is, however, very well marked indeed, though it is not black but dark brown and clearly set off from the surrounding parts.

The canines are fairly long and grooved anteriorly. Face and skin round the eyes bluish white. Irides light brown.

Skull measurements:

Total length = 136,5; Basicranial length = 91,2; Condylbasal length = 101,0; Occipitonasal length = 112,2; Zygomatic breadth = 86,0; Width of brain case = 66,0; Least interorbital breadth = 7,0; Least postorbital breadth = 48,3; Length of palate mesially = 58,5; Length of nasals mesially = 32,0; Front of canine to back of m^3 = 46,0; Length of upper molar series = 38,0; Length of lower molar series = 41,1 mm.

Nycticebus coucang. BODD.

♂ Pak Koh $\frac{10}{4}$ 1914. — Nose to vent = 343 mm. — ♀ Chieng Sen. — Nose to vent = 315 mm.

During my journey in Siam I obtained two specimens of this species. One very old male was brought to me by a native when I had my camp at Pak Koh in Northern Siam. It had been caught in the jungles at the neighbourhood. The specimen was very savage and tried to bite fiercely when handled. — The other specimen, an adult female, was presented to me by the district officer at Chieng Sen, the most northern town in Siam. That specimen was quite tame and I kept it as a pet for several months. During the daytime it usually was sitting in a corner of its cage, with the head and hands concealed between the thighs looking like a woolen ball. When disturbed in some way it generally uttered a low croaking sound. At night-time, however, it was more lively climbing about in the cage. I fed it on birds and bananas which it seemed to like very much. When angry it uttered a loud hissing grunt. It was quite tame but when handled it grasped with great tenacity to everything and was sometimes rather difficult to get rid of.

There seems to be a great difference as to size between the males and the females and though both my specimens are fully adult (the teeth are quite worn) the size of the male is considerably larger than that of the female, as seen by the skull measurements given below.

In his »Review of the Primates» ELLIOT has given a »key to the species» (Vol. I p. 23). He there divides these animals into two distinct groups which are being characterized as follows:

»Group A: Skulls with sagittal crest; incisors two.» Against this stands: »Group B: Skulls without sagittal crests; incisors four.»

To the first group ELLIOT refers *Nycticebus borneanus* and *Nycticebus bancanus*. Both these species are described by LYON (Proc. U. S. Nat. Mus., Vol. 31 p. 527—538) in his »Notes on Slow Lemurs». Even LYON unites these two species into one group, but in his key (p. 531, tom. cit.) he writes: »Temporal ridges not meeting or approximating each other in old age, but forming two parallel ridges on top of skull; no specimens, not even newborn young show more than one incisor on each side of the upper jaw».

LYON, when describing *N. borneanus* says (p. 536): »Temporal ridges never uniting to form a sagittal crest, forming instead two parallel ridges on top of skull».

As concerning *N. bancanus* LYON says: »Skull similar to that of *Nycticebus borneanus*». As seen by this ELLIOT's »statement» is absolutely opposite to the fact. The same is also the case with his Group B, which is characterized by ELLIOT with the following words: »Skulls without sagittal crests; incisors four».

About this group LYON says: »Temporal ridges meeting or approximating each other in old age, eventually forming a sagittal crest on top of skull.»

This latter statement is also confirmed by the material at my disposal. The male specimen has a well developed sagittal crest measuring about 15 mm. in length. In the female specimen, however, there is no crest, but the temporal ridges are only separated from each other by a narrow space and would probably have formed a crest if the specimen had grown older.

ELLIOT's statement about the teeth is also misleading, because in the second group the species in many cases are only provided with two upper incisors when adult. This is always the case with *Nycticebus hilleri* STONE & REHN and in accordance with LYON's description. In *N. malaianus* ANDERS. and *N. javanicus* E. GEOFFR. the upper incisors may be two, three and four in adult specimens.

MILNE EDWARDS described in Nouv. Arch. du Mus. Bull. III. 1867. p. 11 a specimen of *Nycticebus* received from the vicinity of Bangkok and gave it the name of *N. cinereus*. It is stated to be very similar to *N. coucang* BODD., but the head, neck and forearms are clear grey and the face markings obsolete.

MILNE EDWARDS also gives a drawing of this species (tom. cit. plate 3.) but that plate does not resemble my specimens which are much paler as to the general colouration of the fur.

ANDERSON in his »Catalogue of the Mammalia in the Indian Museum», Part I p. 95 (Calcutta 1881) recognizes three varieties of *Nycticebus tardigradus* viz. *cinerea*, *malaiana* and *javanica*. The description of var. *cinerea* which I here content in full fairly well suits the male specimen in my collection. ANDERSON writes: »Clear greyish ashy or silvery grey on the head and neck, with only a trace of the head-markings so distinct in the Javan race; the rest of the trunk greyish, but washed with brownish and tending to reddish brown on the hind quarters. Dorsal band rich dark brown, fading away on the vertex.»

After a careful examination of the literature concerning the Genus *Nycticebus* I have come to the conclusion that *Nycticebus cinereus* M. EDW. is probably only based on individual variation and that the main form is *Nycticebus coucang* BODDAERT. of which *Nycticebus bengalensis* E. GEOFFR. is only a synonymus.

Skull measurements	♂	♀
Greatest length	68,0 mm.	63,8 mm.
Basal length	59,5 "	55,1 "
Palatal length	23,0 "	22,0 "
Zygomatic width	46,0 "	41,3 "
Least interorbital width	5,0 "	5,0 "
Greatest breadth of brain case . . .	34,1 "	30,8 "
Length from palate to lower margin of <i>foramen magnum</i>	33,7 "	31,7 "
Breadth of <i>basioccipitale</i> at its ante- rior end	5,3 "	4,3 "
Length of nasals mesially	19,2 "	18,0 "
Breadth at middle of orbits	43,0 "	39,9 "
Length of upper molar series	19,0 "	18,2 "

Pteropus sp.

The following species and subspecies of the Genus *Pteropus* are recorded by Dr. K. ANDERSEN from Siam (Andersen, Cat. Chiroptera Brit. Mus. Vol. I. 1912.)

Pteropus lylei K. AND. from the Bangkok region and Cochin China, *Pteropus intermedius* K. AND. the range of which includes Tenasserim and Peninsular Siam and *Pteropus hypomelanus condorensis* PET. which has been obtained at Pulu Condor, Cambodia and Siam.

In Bangkok I several times observed Flying Foxes but as no specimens were collected, I am unable to ascertain what species they belonged to, but it was most probably *Pteropus lylei* K. AND.

Cynopterus brachyotis brachyotis. S. MÜLL.

♂ Koh Lak, Siamese Malaya ²¹/₂ 1915 (in alcohol). — Forearm = 64,5 mm.; Ear = 16,5 mm. —
♀ Koh Lak ²¹/₂ 1915. — Forearm = 63,0 mm.

Both this and the next species were rather common at Koh Lak and its neighbourhood. They were generally frequenting some fruitbearing trees just outside the house I lived in and were especially common during moonlight nights. During daytime I never found them. Their flight is rather swift, but as they generally fly fairly low they are easily captured. When feeding they were always hanging in the ordinary way keeping the fruit between the thumbs and the index finger.

Skull measurements of a female specimen:

Greatest length = 28,5; condylobasal length = 27,1; palatal length to foramen incisivum = 12,2; length of rostrum from orbit to nares = 6,3; width of brain case = 12,0; zygomatic width = 18,9; lachrymal width = 6,5; least postorbital breadth = 6,8; least interorbital breadth = 5,5; length of mandible from condylus to front of canine = 21,1; length of upper cheek teeth (c—m¹) = 9,2; length of lower cheek teeth (c—m₂) = 10,6 mm.

Cynopterus brachyotis angulatus. MILLER.

♂ Koh Lak, Siamese Malaya ²⁷/₁₁ 1914. (in alcohol). — Forearm = 70,0 mm.; Ear. = 18,6 mm. —
 ♂ Koh Lak ²⁷/₁₁ 1914. — ♀ Koh Lak ²⁷/₁₁ 1914. — ♀ Koh Lak ²¹/₂ 1915 (in alcohol) — Forearm = 71,5 mm.; Ear = 19,0 mm. — ♀ Koh Lak ²¹/₂ 1915 (in alcohol). — Forearm = 68,7 mm.; Ear = 18,5 mm. — ♀ Koh Lak ²¹/₂ 1915 (in alcohol). — Forearm = 68,2 mm.; Ear = 18,2 mm.

As stated about *Cynopterus brachyotis brachyotis* S. MÜLL. both these species were very common at Koh Lak and its near surroundings, though quating from the specimens obtained, this species seems to be more common than the true *brachyotis*.

This is apparently a more northern form than *Cynopterus brachyotis brachyotis* S. MÜLL. though both species seems to meet in the northern parts of the Malay Peninsula.

Skull measurements	♂	♀
Greatest length	— mm.	31,0 mm.
Condylobasal length	— »	29,4
Palatal length to foramen incisivum	14,2 »	13,2
Length of rostrum (orbit to nares).	7,2 »	7,2 »
Width of brain case	— »	13,5
Zygomatic width	18,8 »	19,1 »
Lachrymal width	6,3 »	6,5 »
Least interorbital width	5,4 »	5,3 »
Least postorbital width	6,1 »	6,4 »
Length of mandible from condylus to front of canine	23,1 »	23,1 »
Upper tooththrow (c—m ¹)	10,5 »	10,0 »
Lower tooththrow (c—m ₂)	12,2 »	10,8 »

Cynopterus harpax. THOS. & WROUGHT.

♂ Doi Par Sakeng, Northwestern Siam ¹⁷/₇ 1914. — Forearm = 69,0 mm. — ♀ Doi Par Sakeng ¹⁷/₇ 1914. — Forearm = 71,2 mm. — ♂ Doi Par Sakeng ¹⁷/₇ 1914. (in alcohol). — Forearm = 76,0 mm.; Ear = 20,0 mm. — ♀ Doi Par Sakeng ¹⁷/₇ 1914 (in alcohol). — Forearm = 80,0 mm.; Ear = 18,0 mm. — ♂ Doi Vieng Par, Northwestern Siam ⁶/₇ 1914. — Forearm = 78,2 mm.

All these specimens were obtained in heavy forest where they were found roosting in banana trees.

Previously it has only been known from the Semangko Pass on the Selangor—Pahang boundary and the record of this species from Northwestern Siam adds a considerable distance to its distribution to the north.

The cheek teeth are conspicuously narrower posteriorly than anteriorly and the surface cusp on p_4 and m_1 is well-developed. These are the main points of characteristic for *Cynopterus harpax* THOS & WROUGHT, and it is without hesitation that I have identified my specimens as belonging to that species.

Skull measurements	♂	♀	♂
Greatest length	32,0 mm.	33,9 mm.	34,0 mm.
Condylobasal length	29,5 »	30,5 »	32,7 »
Length of palate to foramen incisivum	13,5 »	17,0 »	15,6 »
Length of rostrum (orbit to nares)	7,2 »	7,0 »	7,0 »
Width of brain case	13,0 »	13,2 »	13,7 »
Zygomatic width	—	22,4 »	23,9 »
Lachrymal width	7,6 »	8,0 »	7,5 »
Least postorbital breadth	6,2 »	6,0 »	6,0 »
Least interorbital breadth	6,0 »	6,1 »	7,1 »
Length of mandible from condylus	24,0	25,4 »	25,7
Upper teeth, c— m^1	11,2 »	11,2 »	11,7 »
Lower teeth, c— m_2	12,5 »	12,6 »	13,0 »

Rhinolophus coelophyllus. PETERS.

♀ Koh Lak, Siamese Malaya $3/12$ 1914. — Forearm = 41,4 mm. — ♂ (alc.) Koh Lak $3/12$ 1914. — Forearm = 41,2 mm.; Ear = 14,5 mm.

Apparently rather common at the neighbourhood of Koh Lak where numbers of these bats were seen flying among some low bushes near the sea shore just at dusk.

As far as I know it has not been recorded from Siam before, but specimens have been obtained both in Burma and in the southern parts of the Malay Peninsula (Kedah).

Skull measurements	♂	♀
Total length	17,6 mm.	17,8 mm.
Condylobasal length	15,5 »	—
Width of brain case	7,6 »	—
Mastoid width	8,1 »	8,1 »
Zygomatic width	8,1 »	8,1 »
Width across nasal swellings	4,2 »	4,7 »
Length of upper tooththrow from front of canine to last molar	6,5 »	6,8 »
Length of lower tooththrow from front of canine to last molar	7,0 »	7,0 »
Length of mandible from condylus to suture	11,0 »	—

***Rhinolophus macrotis siamensis* subsp. n.**

♂ Doi Par Sakeng, Northwestern Siam ¹²/₇ 1914. — ♀ Doi Par Sakeng ¹²/₇ 1914.

A member of the *Rhinolophus macrotis* Group. Its nearest ally is *Rhinolophus macrotis macrotis* HODGS. from Nepal and Masuri but it is considerably smaller and has a smaller horseshoe.

From Sumatra another allied race has been described by K. ANDERSEN (Ann. Museo Civico. Genua ser. 3. Vol. III. 1907 p. 25) under the name of *Rhinolophus macrotis dohrni*.

This lastmentioned form is also nearest allied to *R. macrotis macrotis* though easily distinguished by its larger size. The horseshoe is also broader measuring 9—9,5 mm. against 7,5—8,5 mm. in true *macrotis*. In the new form the horseshoe only measures 6,9 mm.

The length of the forearm is also different from that one of the true *macrotis* being only 36,1 mm. against a minimum of 41 mm. in *macrotis* and 42,7 mm. in *macrotis dohrni*.

Besides the noted differences in size the new form does not differ very much from the allied forms and the noseleaf is exactly of the same character as in typical *macrotis*. The dentition is also the same as in that species. Both p^2 and p^3 are in row and in p^2 the cusp is fairly well developed.

Type: Adult male (in alcohol with the skull extracted) collected at Doi Par Sakeng in Northwestern Siam on the 12th of July 1914.

Dimensions of type:

Forearm = 36,1 mm.; tail = 13,0 mm.; ear = 18,9 mm.

Skull measurements ¹	<i>Rhinolophus</i> <i>m. macrotis</i>	<i>Rhinolophus</i> <i>m. dohrni</i>	<i>Rhinolophus</i> <i>m. siamensis</i>	
			♂	♀
Total length to front of canine . .	17,5 mm.	18,0—18,2 mm.	15,4 mm.	15,3 mm.
Basilar length to front of canine . .	13,8 "	14,2—14,4 "	12,3 "	12,0 "
Mastoid width	8,8 "	8,8 "	7,4 "	7,2 "
Width of brain case	7,8 "	7,6—7,7 "	6,5 "	6,7 "
Zygomatic width	8,2 "	8,2 "	6,9 "	7,1 "
Maxillary width	5,8 "	5,8—6,0 "	4,8 "	4,7 "
Width across nasal swellings	4,7 "	4,9—5,0 "	3,7 "	3,6 "
Length of mandible to front of incisors	11,5 "	11,8 "	9,5 "	9,3 "
Length of upper toothrow, c—m ³ .	6,3 "	6,7 "	5,3 "	5,2 "
Length of lower toothrow, c—m ₃ . .	6,8 "	7,0 "	5,6 "	5,7 "

This is apparently — like its other relatives — exclusively a mountain form, being found nowhere but at considerable elevations.

¹ For comparison I have recorded some measurements of *Rhinolophus macrotis macrotis* HODGS. & *Rhinolophus macrotis dohrni* AND. taken from the above-mentioned paper by Dr. KNUD ANDERSEN.

The specimens obtained were both shot in the evening just before dusk, and they were flying at a considerable height and rather difficult to get. In no other parts of the country obtained or observed.

Rhinolophus malayanus. BONH.

♀ Koh Lak, Siamese Malaya $\frac{3}{12}$ 1914. — Forearm = 40,5 mm.

A single specimen of this bat was obtained at Koh Lak in the Siamese Malaya. It agrees well with the description given by BONHOTE (*Fasciculi Malayensis*. Part I. 1903 p. 15) who described it on specimens from Biserat, Jalor. Since that time some other specimens have been obtained among the Laos mountains of Northern Siam.

Skull measurements:

Total length = 17,7; mastoid width = 8,1; width of brain case = 7,5; zygomatic width = 8,0; length of mandible = 11,1; upper teeth = 6,3; lower teeth = 6,9 mm.

Rhinolophus minor. HORSE.

♂ Koh Lak, Siamese Malaya, $\frac{3}{12}$ 1904. — Forearm = 38,0 mm.

A member of the *Rhinolophus lepidus* Group as defined by K. ANDERSEN in his excellent paper »On some Bats of the Genus *Rhinolophus*» (Proceedings of the Zoological Society 1905. Vol. II, p. 75—145).

In this Group ANDERSEN recognises three different types viz. 1) the *lepidus*-type, 2) the *minor*-type and 3) the *subbadius*-type.

The *minor*-type is characterized by having a proportionately very small skull; the width of the brain-case varies between 6,8—7,2 mm.; the connecting process of the sella projects as a small, erect triangle and is never curved forwards as a sharply pointed »horn».

The *minor*-type contains the following forms besides the true *R. minor* HORSE. from Nepal, Siam, the Malay Peninsula and Java, *Rhinolophus cornutus* TEMM. from Japan, *R. cornutus pumilus* K. AND. from Foo-chow and the Loo-choo Islands and *R. gracilis* K. AND. the type of which came from the Malabar coast.

Skull measurements of ♀ from Koh Lak.

Upper toothrow from front of canine to back of last molar = 5,7 mm.; lower toothrow from front of canine to back of last molar = 6,3 mm.

Hipposiderus armiger. HODGS.

♂ Doi Par Sakeng, Northwestern Siam $\frac{22}{8}$ 1914. — Forearm = 94,2 mm. — ♂ Doi Par Sakeng, $\frac{22}{8}$ 1914 (in alcohol). — Forearm = 95,0 mm. — ♀ Nong Bea, Northwestern Siam $\frac{2}{7}$ 1914. — Forearm = 93,0 mm. — ♂ Nong Bea $\frac{2}{7}$ 1914 (in alcohol). — Forearm = 97,2 mm. — ♀ Nong Bea $\frac{2}{7}$ 1914 (in alcohol). — Forearm = 92,0 mm.

All the specimens obtained seems to belong to the typical form of *Hipposiderus armiger* HODGS., the range of which extends from Masuri eastwards through Upper Burma

into Szechwan and Fokhien. The southern race which inhabits the Malay Peninsula, northwards to Assam (Khasi Hills) has been separated by K. ANDERSEN under the name of *Hipposiderus armiger debilis*. The differences between this race and the true *H. armiger* are, however, very slight (vide: ANDERSEN, Ann. & Mag. Nat. Hist. ser. 7, vol. 17. 1906 p. 35—48).

The specimens collected at Nong Bea were all obtained in a deep cave in a limestone mountain. The other specimens were shot just at dusk at the neighbourhood of my camp at Doi Par Sakeng.

From Northern Siam another allied form has been described by THOMAS under the name of *Hipposiderus lylei* (Ann. & Mag. Nat. Hist. ser. 8., vol. 12. 1913 p. 88). This species was found at the Chieng Dao cave together with *Hipposiderus armiger* HODGS. During my journey I also visited the Chieng Dao cave but at the time of my visit not a single bat was observed though a thick layer of dung indicated that this cave was inhabited by numbers of bats.

Hipposiderus lylei is nearest related to *Hipposiderus pratti* THOS. from Szechwan, though it is slightly smaller than that species among other particulars which makes a specific separation between these two related forms necessary.

Hipposiderus lylei has recently been obtained in the Northern Shan States why its range seems to be confined to Northern Siam, the Shan States and Upper Burma.

Skull measurements	♂	♀
Total length	32,0 mm.	33,0 mm.
Mastoid breadth	15,0	15,1
Width of brain case	12,0	12,1
Zygomatic width	18,0	18,6
Length of mandible from condylus to front of canine	21,6	22,5
Upper tooththrow	12,1	12,8
Lower tooththrow	13,8	14,0

Hipposiderus fulvus. GRAY.

♂ Chieng Mai, Northern Siam ¹⁸/₆ 1914 (in alcohol). — Forearm = 41,1 mm. — ♀ Chieng Mai ¹⁸/₆ 1914. — Forearm = 41,0 mm. — ♀ Koh Lak, Siamese Malaya ³/₁₂ 1914. — Forearm = 41,0 mm.

The Bicoloured Leaf-nosed Bat seems to be widely distributed in Siam and was both obtained in the Northern parts of the country and in the Siamese Malaya. The specimens from Chieng Mai were collected in an old pagoda outside the town in company with *Coelops frithii*, BLYTH.

The specimen from Koh Lak was captured in my house in the village.

The ears in this species are very large. The fur is very long and dense and of a dark brown colour on the back, each hair being fulvous white at the base. The nose-leaf is rather small and not very complicated.

The specimen from Koh Lak is somewhat darker in colouration and the bases of the hairs on the back are pure white instead of fulvous white as in the other specimens.

Skull measurements	♀	♀
Total length	18,1 mm.	17,3 mm.
Mastoid breadth	—	8,9 »
Width of brain case	—	7,9 »
Zygomatic width	—	8,5 »
Length of mandible from condylus to front of canine	—	10,1 »
Upper tooththrow	6,1 »	5,9 »
Lower tooththrow	6,7 »	6,3 »

Coelops frithii. BLYTH.

♂ Chieng Mai, Northern Siam ¹⁸/₆ 1914. — Forearm = 40,6 mm. — ♂ Chieng Mai ¹⁸/₆ 1914. — Forearm = 42,1 mm. — ♂ Chieng Mai ¹⁸/₆ 1914. — Forearm = 43,5 mm. — ♀ Chieng Mai ¹⁸/₆ 1914 (in alcohol). — Forearm = 40,0 mm. — ♀ juv. Chieng Mai ¹⁸/₆ 1914.

The whole series was obtained in an old almost ruined pagoda just outside the town of Chieng Mai.

The young specimen has the wing membranes as well as the interfemoral membrane pale grey. The colour of the fur above is almost black, below it is grey and of a much paler colour than that of the adult specimens.

Skull measurements	♂	♂
Total length	18,0 mm.	18,1 mm.
Mastoid breadth	7,8 »	7,9 »
Width of brain case	7,8 »	8,0 »
Zygomatic width	7,5 »	7,8 »
Length of mandible from condylus to front of canine	10,0 »	10,1 »
Upper tooththrow	6,1 »	6,4 »
Lower tooththrow	6,8 »	6,8 »

Some other species of the Genus *Coelops* have been described viz. *Coelops bernsteini* PETERS from Java and *Coelops robinsoni* BONH. from the mountains of the Malay Peninsula (Gunong Tahan and Kao Nawng, Bandon). In *Coelops bernsteini* the forearm is about 42 mm. and in *Coelops robinsoni* the forearm only measures 37 mm.

Eptesicus pachyotis. DOBSON.

♂ Doi Par Sakeng, Northwestern Siam ²²/₇ 1914. — Forearm = 43,2 mm. — ♂ Doi Par Sakeng ¹¹/₇ 1914. — Forearm = 44,6 mm. — ♀ Doi Par Sakeng ¹⁹/₇ 1914. — Forearm = 44,5 mm. — ♀ Doi Par Sakeng ²²/₇ 1914. — Forearm = 43,3 mm.

This is apparently a somewhat rare species, the types of which (collected at Khasia Hills, Assam) for a long time remained unique until a specimen was collected by Ro-

BINSON & KLOSS at Kao Nawng in the Siamese Province of Bandon in the Northern parts of the Malay Peninsula.

In Northwestern Siam it was apparently not uncommon and four specimens were collected during my stay at Doi Par Sakeng. The length of the forearm seems to be rather variable. In the male specimens in my collection it varies between 43,2—44,6 mm. and in the females between 43,3—44,5 mm. ROBINSON & KLOSS gave the forearm in their specimen to 41,5 mm. and in the »Fauna of British India» it is given to 1,6 inches which is about the same as in the Bandon-specimen.

The cranial measurements on my specimens and that one from Bandon are almost identical and therefore I think it is wisest not to give the specimens from Northern Siam a new subspecific name at least not until further material has been available.

Skull measurements ¹	♂	♂	♀
Total length	17,1 mm.	17,1 mm.	16,5 mm.
Mastoid breadth	9,5 »	10,2 »	9,5 »
Width of brain case	8,2 »	8,5 »	8,2 »
Zygomatic width	13,0 »	13,2 »	12,7 »
Length of upper toothrow	6,0 »	6,0 »	6,0 » (6,1 mm)
Length of lower toothrow		7,0 »	6,4 » (6,8 »)
Length of mandible from condylus to suture	6,9 »		
	12,2 »	12,4 »	11,9 » (13,2 »)
Condylbasal length	16,1 »	16,4 »	15,8 » (15,9 »)
Palatilar length	7,1 »	7,6 »	7,1 » (7,9 »)

Tylonycteris rubidus. BLYTH.

♀ Doi Vieng Par, Northwestern Siam (ca 4000 feet) 6/7 1914. — Forearm = 25,0 mm.

As in Burma a small form of this bat also occurs in the mountain regions of Northern Siam and one female specimen was shot at my camp on the slopes of the Doi Vieng Par at an elevation of about 4000 feet.

It was apparently not uncommon as numbers of specimens were observed at dusk flying at a considerable height and were then rather difficult to get.

It is with some hesitation that I have accepted BLYTH's name for the Siamese form. His type came from Sehwe Gyen in Upper Burma and is stated to be of a deep rufous colour.

My specimen is not rufous but dark brown above and the hairs are fulvous at their bases. The lower surface of the body is of about the same colour as in the specimens of *Tylonycteris robustula* THOS. in my collection though perhaps somewhat darker.

Skull measurements:

Greatest length = 10,8; median length = 8,9; condyle to front of canine = 10,1;

¹ Measurements in brackets are those recorded by ROBINSON & KLOSS on their specimen from Bandon (Journal Fed. Malay States Mus. Vol. V. No 3. 1915 p. 116.).

interorbital constriction = 3,1; width of brain case = 6,1; zygomatic width = 7,9; front of canine to back of m^3 = 3,2 mm.

***Tylonycteris robustula*. THOS.**

♂ Doi Par Sakeng, Northwestern Siam, ¹²/₇ 1914. — Forearm = 28.0 mm. — ♀ Doi Par Sakeng ¹²/₇ 1914. — Forearm = 27.0 mm.

In the Annals and Magazine of Natural History ser. 8., vol. 15. 1915 p. 226—228. MR. OLDFIELD THOMAS has given some notes about bats belonging to the Genus *Tylonycteris*. He there also describes a new species under the name of *Tylonycteris robustula*, the range of which is given to the Malay Peninsula, Borneo, Java, Celebes and Timor.

The description and measurements of this species fairly well agrees with two specimens in my collection from the mountain regions of Northwestern Siam, which I therefore have referred to *T. robustula* THOS.

THOMAS gives the forearm as measuring from 26—28 mm. which is also confirmed by my specimens.

The colour above is dark blackish brown and slightly lighter below. The interorbital constriction is not so broad as recorded by THOMAS on the type specimen which came from Sarawak, Borneo.

Skull measurements	♂	♀	♀ (Type)
Greatest length	12,6 mm.	12,1 mm.	12,5 mm.
Median length	10,7	—	10,2
Condylus to front of canine	11,9	11,1	11,7
Interorbital breadth	3,7	3,4	4,1
Width of brain case	7,0	—	7,6
Zygomatic width	9,8	—	—
Front of canine to back of m^3 . . .	4,0	3,9	4,2

***Scotophilus kuhli*. LACH.**

♀ Meh Kee, Northwestern Siam, near the boundary to Karennee, ¹⁷/₇ 1914. — Forearm = 59,5 mm.

Only a single specimen of this bat was obtained during my journey. It was found together with some other specimens roosting in a wild banana tree in a very dense jungle.

From Northern Siam it has been recorded before as well as another allied species, *Scotophilus castaneus* HORSEF. This latter species may always be distinguished by its smaller size and by its uniform chestnut fur which is of about the same colour throughout and not lighter below as in *S. kuhli*. The length of the forearm according to BONHOTE (Proc. Zool. Soc. 1900 p. 192) ranges in 5 specimens of *S. castaneus* in the British Museum between 49—52 mm. while in *S. kuhli* the average length of the forearm is about 60,5 mm.

Skull measurements:

Total length = 20,5 mm; length of mandible from condylus to front of canine = 14,2 ; length of upper toothrow = 7,1; length of lower toothrow = 8,2 mm.

***Kerivoula hardwickii.* HORSE.**

♀ Hue Muang, Northwestern Siam, ⁴/₇ 1914. — Forearm = 33,0 mm.; Ear = 14 mm.; Tail = 45,3 mm. Caudal vertebrates = 6.

Even this specimen was caught in a wild banana tree growing in a dense ever-green jungle near the bank of a small creek called Hue Muang, the sources of which are situated on Doi Vieng Par, one of the highest and wildest mountains of Northwestern Siam.

The dimensions of my specimen, though a female, are slightly larger than those recorded for true *Kerivoula hardwickii*, HORSE. Especially the ears seems to be longer and when laid forward reach some distance beyond the nose.

The cranial dimensions, however, are almost exactly the same as given by THOMAS for typical *Kerivoula hardwickii* as seen by the measures given below. (Measurements in brackets are those recorded by THOMAS.)

Total length of skull	15,5 mm.	
Basilar length	11,8	(11—12 mm.)
Condylar incisive length	13,7	(13,2—14 »)
Mastoid breadth	8,0	
Zygomatic width	9,0	(9,0—9,5 »)
Width of brain case	7,8	(7,8—8,2 »)
Breadth across palate at front end of last molar .	5,2	(5,0—5,8 »)
Upper toothrow (canine to last molar)	5,8	(5,5—6,0 »)
Lower toothrow (canine to last molar)	6,2	

***Tupaia belangeri.* WAGN.**

♂ Koh Lak Paa, near the boundary between Siam and Tenasserim, ⁷/₁₂ 1914. — Nose to vent = 165 mm.; tail = 175 mm.; hindfoot = 41 mm. — ♂ Koh Lak, Siamese Malaya ²⁷/₁₁ 1914. — Nose to vent = 176 mm.; tail = 158 mm.; hindfoot = 41 mm.

Both these specimens are typical *Tupaia belangeri* as described by WAGNER on a specimen from the neighbourhood of Rangoon. This species extends as far down the Malay Peninsula as to the Isthmus of Kra where it meets *Tupaia lacernata wilkinsoni* ROB. & KLOSS which belongs to a group which is almost intermediate in colour between *Tupaia belangeri* WAGN. and *Tupaia glis ferruginea* RAFFL. from the southern third of the Malay Peninsula. *Tupaia belangeri* seems to be quite as common on the eastern side of the Peninsula as on the western.

Skull measurements	♂	♂
Greatest length	49,0 mm.	— mm.
Condylbasal length	47,0 »	— »
Basilar length	44,5 »	— »
Zygomatic width	25,0 »	25,4 »
Width of brain case	18,3 »	19,5 »
Palatal length	25,7 »	24,8 »
Length of nasals	15,2 »	14,7 »
Interorbital breadth	13,9 »	13,8 »
Maxillary tooththrow	17,0 »	18,0 »

Tupaia belangeri laotum. THOS.

Ann. Mag. Nat. Hist. ser. 8, vol. 13. 1914 p. 244.

♀ Koon Tan ¹⁶/₅ 1914. — Nose to vent = 175 mm.; tail = 173 mm.; hindfoot = 41 mm. — 1 ad.
Koon Tan ¹⁹/₅ 1914. — Nose to vent = 170 mm.; tail = 170 mm.; hindfoot = 41,5 mm.

In a paper »On the Tree Shews of the *Tupaia belangeri-chinensis* Group» Mr. OLD-FIELD THOMAS also describes a new subspecies of a *Tupaia* obtained at Nan in North-eastern Siam under the name of *Tupaia belangeri laotum*.

In the description Mr. THOMAS remarks that the »general colour is rufous brown» and quotes »Brussels brown» of RIDGWAY as being nearest. That colour also agrees fairly well with one of the specimens in my collection viz. that one obtained at Koon Tan on the 16th of May. Especially the colour on the flanks matches it very well indeed. The rump in that specimen is also decidedly darker than the upper back but blackish brown instead of blackish grey as stated by THOMAS.

The other specimen seems to be a younger individual and its general colouration is much darker. The dark colour on the rump is not so well-marked as in the other specimen.

The skulls resemble those of true *belangeri* much more than those of *chinensis* and I therefore believe that THOMAS is quite right that this form ought to be considered as a subspecies of *belangeri* rather than of *chinensis*.

In the specimen obtained in May the lower parts of the hindlimbs are greyish white and the underparts of the body pale buff.

This species seems to be generally distributed over the whole of Northern Siam, though it was not very abundant at the localities visited by the Expedition. Both my specimens were obtained at an altitude of about 1200 m.

Skull measurements:

Greatest length	47,6 & 47,5 mm.	
Condylobasal length	46,0 & 45,0	(47,5 mm. ¹)
Zygomatic width	23,6 & 22,0	(25,0
Width of brain case	17,8 & 18,2	(19,0
Palatilar length	25,8 & 24,5	
Length of bullæ	9,5 & 9,5	
Breadth of bullæ	6,0 & 5,8	»
Maxillary tooththrow	17,7 & 17,8	» (18,0

***Tupaia siamensis* sp. n.**

♂ Koh Lak, Siamese Malaya, ²⁶/₁₁ 1914.

This new species is most nearly related to *Tupaia malaccana* ANDERS. from the southern parts of the Malay Peninsula, Sumatra and the Linga Island. It may, however, be easily distinguished by its greater size.

Colour: General colour above grizzled black and russet brown; the hind parts of the body with a well-marked rufescent tinge. Tail much darker than the rest of the upper parts of the body and more coarsely grizzled, the black colour being more predominant. Along the middle of the lower surface of the tail a »snuff brown» area (Dauthenay, Rép. de Couleurs plate 303 and nearest No. 4.) Underparts of the body ochraceous buff, darker on the middle of the abdomen; shoulder stripe pale ochraceous buff, though the stripe is fairly indistinct.

Skull: Viewed from above the skull resembles that one of *Tupaia javanica* HORSE. as figured by ANDERSON (Anat. and Zool. Researches vol. II plate VII. 1878) save that the skull is narrower. The distance between the two lachrymal notches is equal to the distance from that notch to the front of the first upper incisor.

External measurements of type:

Head and body = 145 mm.; tail = 175 mm.; hindfoot = 42 mm.

Skull measurements:

Greatest length = 44,0; condylobasal length = 41,2; occipitonasal length = 43,0; basilar length = 39,0; length of palate to posterior margin of foramen incisivum = 17,2; lachrymal notch to tip of premaxillare = 17,1; zygomatic breadth = 19,9; greatest breadth of brain case = 17,5; least interorbital breadth = 11,8; length of nasals mesially = 13,9; breadth of nasals anteriorly = 2,7; breadth of nasals posteriorly = 4,2; length of bullæ = 9,1; maxillary tooththrow = 16,2 mm.

Type: Semiadult male collected near Koh Lak in the Siamese Malaya ²⁶/₁₁ 1914.

Remarks: As noted in my diary this species was very rare at the localities visited by the Expedition and only a few more specimens were observed. Unlike the other kind of *Tupaia* which I obtained among the mountains on the boundary to Tenasserim viz. *Tupaia belangeri* WAGN. this species exclusively seemed to live on the ground among the undergrowth while *Tupaia belangeri* WAGN. was most often seen in the trees running about like a squirrel.

¹ Measurements in brackets are those of the type (♀) according to THOMAS.

Ursus tibetanus. CUV.

Plate II. Fig. 1—2.

The Himalayan Black Bear only occurs in Northern Siam, where it also seems to be rather rare.

Once when out hunting Seladang in the dense jungles at the foot of the Doi Vieng Par in Northwestern Siam one of my hunters came across a bear but if it was this species or the next is impossible to ascertain as the specimen was not shot.

The Divisional Engineer Mr. EMIL EISENHOFER had a young specimen of this Bear at his bungalow at Koon Tan. It was quite tame and very amusing. It generally ran about quite free in the neighbourhood though always returning in the afternoon to get its food which mostly consisted of rice and curry. It liked to bathe very much and had a curious habit to suck its paws. Then it uttered a low grunting note. When sucking it generally lay down on its back with the feet in the air. It was a good climber and often made excursions up in the trees in search of ants nests, the inhabitants of which it devoured with the help of its long tongue.

Helarctos malayanus. RAFFL.

The Malay Bear also occurs in Siam where it seems to be distributed over the whole country. A native once brought me a small young which had been caught in the jungles at the neighbourhood of Koon Tan. It was very fierce and tried to bite at everything. I kept it for some days in a cage but one night it broke the cage and escaped.

In the forests near Hat Sanuk I once heard the growl of a bear probably being molested in some way by the presence of a party of langurs. In the parts of the Siamese Malaya visited by the Expedition I several times struck the tracks of bears which apparently were not uncommon at these localities. No specimens were, however, obtained.

Helictis personata. GEOFFR.

♀ juv. Chiang Mai, Northern Siam, Aug. 1914. — Nose to vent = 235 mm.; tail = 109 mm.

During my stay at Chiang Mai at the end of August 1914 I obtained a young specimen of the Ferret Badger, which had been caught just outside the town. I kept the small, nice little animal for some months as a pet, and it grew quite tame and would follow me or my Dyak collector like a dog. When I called it, it at once came to me and it seemed to like very much being patted. I fed it on the remains of the shooten birds, fruits and rice which it liked very much. It grew very slowly and one day it suddenly died.

The underfur is very soft almost wholly and of an isabelline colour. The general colouration above is nearest to »warm sepia» (Dauthenay, Rép. de Couleurs pl. 305 No. 2); the dorsal band is almost pure white; the frontal band and the tips of the ears are

white washed with fulvous; lower parts of the body white strongly washed with pale yellowish buff; basal part of the tail of the same colour as the back though intermixed with some long dirty white hairs; terminal part of the tail above and the whole tail below dirty white tinged with pale yellow; claws white; whiskers black.

***Martes flavigula peninsularis*. BONH.**

Ann. Mag. Nat. Hist. Ser. 7. Vol. 7. 1901 p. 346.

♂ Hat Sanuk, Siamese Malaya. ²³/₂ 1915. — Nose to vent = 565 mm.; tail = 375 mm. — ♀ Hat Sanuk, Siamese Malaya, ²¹/₂ 1915.

A few specimens of this Marten were observed in the forests on the boundary between Siam and Tenasserim. They were generally observed in pairs and were seen on the ground as well as in the trees. Both the specimens obtained were shot at a small salt-lick just before dusk, when the animals were coming down to drink.

At the neighbourhood of Doi Par Sakeng some specimens of this or the typical race *Martes flavigula flavigula* BODD. were met with at several occasions but unfortunately no specimens were obtained at this locality.

The typical *Martes flavigula flavigula* BODD. inhabits Northern India, Nepal, Assam and Burma being replaced in Southern Burma and the Malay Peninsula by *Martes flavigula peninsularis* BONH.

The male specimen in my collection is apparently a very old specimen. The teeth are much worn and the sagittal crest very well-developed.

The peninsular race may always be distinguished by its naked soles, the short fur and the dark underparts.

Skull measurements	♂	♀
Greatest length	99,2 mm.	95,0 mm.
Basicranial length	89,0	85,2
Condylobasal length	98,2	93,7
Zygomatic width	59,3	54,0
Greatest width of brain case	40,1	41,0
Length of nasals mesially	—	14,5
Breadth of nasals anteriorly	—	12,0
Breadth of nasals posteriorly	—	8,0
Least interorbital width	21,2	19,0
Least postorbital width	23,1	24,0
Palatal length	44,2	42,3
Width of palate between last molar	12,0	13,5

BODEN KLOSS has recently described a new subspecies from South-eastern Siam under the name of *Martes flavigula indochinensis* (Proc. Zool. Soc. London 1916 p. 35).

This new race is stated to be very similar to *M. flavigula flavigula* as to the general colouration of the fur. It may, however, be distinguished by its »naked soles, short harsh fur, small size and broad inner lobe of the posterior molar».

In Siam three different races of this Marten may then occur: 1) *Martes flavigula flavigula* BODD. inhabiting the most northern parts of the country, 2) *Martes flavigula peninsularis*, BONH. from Peninsular Siam and 3) *Martes flavigula indochinensis*, KLOSS. from South-eastern Siam.

Lutra nair. CUV.

Some specimens of Otters were observed in the Meh Lua River some distance north of the town of Chieng Hai in Upper Siam. I only once had the opportunity of firing a shot at an otter, but it only got wounded and was lost among the reeds.

At Chieng Hai Dr. BRIGGS presented me a dried skin without skull of an otter having been shot at the neighbourhood of the town. This is probably a specimen of *Lutra nair* CUV. though the exact determination is of course impossible. The specimen, however, fairly well agrees with the description of *L. nair*. The lower parts of the body are distinctly whitish and the fur on the chin and throat are white throughout. Whiskers yellowish white.

Thos aureus crusemanni. MATSCHIE.

The Jackal inhabiting Siam has been separated by MATSCHIE under the name of *Thos aureus crusemanni*. This race was founded on specimens collected at Nong Bua in Eastern Siam. It may be distinguished by having two white bars running across the breast which is greyish brown; about two thirds of the upper part of the tail is pure black and the white colour on the upper lip is strongly marked off from the sides of the head.

During my whole journey in Siam I only once met with a Jackal. When marching down to the coast after having spent some weeks among the mountain forests at Hat Sanuk in the Siamese Malaya I caught a glimpse of a Jackal which leisurely came trotting on the path I was following. Before I could fire a shot after it, it disappeared into the jungle where it was lost for ever.

Doctor MALCOLM SMITH showed me a skin of a Jackal which was said to have been obtained somewhere in Muang Pran, thus the same district where I observed this fine animal. Unfortunately I did not take any special records about that skin and I am therefore unable to state if it belonged to the form described by MATSCHIE or not.

From the Malay Peninsula it has nevertheless not been recorded before.

Cuon rutilans. S. MÜLL.

Wild Dogs probably belonging to this species, occur here and there at suitable localities over the whole country but as they are very shy and keep to the densest jungles they are very seldom met with.

I never myself saw any but my Dyak collector met with one during one of his excursions in the jungles at the neighbourhood of Koh Lak. Though he fired 4 shots after it he did not get it on the spot.

The wild dogs generally assemble in packs and during the rainy season they are chasing the deer down in the rivers where they kill them. This according to some natives who I questioned about the behavior of the wild dogs.

Viverra zibetha pruinosa. WROUGHT.

Journ. Bombay Nat. Hist. Soc. vol. 24. No. 1. 1915 p. 64.

♂ Hat Sanuk, Siamese Malaya, ²¹/₂ 1915. — Nose to vent = 800 mm. — ♂ Hat Sanuk ¹⁹/₂ 1915. — Nose to vent = 810 mm.; tail = 430 mm. — ♂ Koh Lak Paa, Siamese Malaya, ⁹/₁₂ 1914. — Nose to vent = 825 mm. — ♂ Hue Sai, Siamese Malaya, ¹⁷/₁ 1915. — Nose to vent = 785 mm.; tail = 450 mm. — ♀ Hue Sai ¹⁵/₁ 1915. — Nose to vent = 775 mm.; tail = 420 mm.

The race inhabiting Tenasserim north to the Shan States and south to the Malay Peninsula has quite recently been separated from the true *Viverra zibetha* LINN. on account of the total absence of a yellowish tinge in the ground colour of that species. In *Viverra zibetha* LINN. all the hairs are tipped with buff while in *Viverra zibetha pruinosa* they are tipped with white. This point of characteristic agrees well with the specimens in my collection which I without hesitation have referred to the above-mentioned form.

This Civet was apparently very common in the evergreen jungles on the boundary between Siam and Tenasserim on about Lat. N. 12°, and like the other Civets it is easily trapped. In the Northern parts of the country it, however, seems to be rather rare and no specimens were obtained. Its tracks were, however, seen at a few occasions. It has a curious habit of letting its droppings on the fallen trees in the jungles. All the specimens obtained were caught in traps where the bait consisted of flesh sometimes of its own comrades.

Skull measurements	♂	♂	♂	♂	♀
Greatest length	134,8 mm.	138,5 mm.	134,9 mm.	137,1 mm.	135,2 mm.
Basiscranial length	126,1	127,0	127,3	130,1	128,3
Condylbasal length	132,0	133,1	135,0	137,2	134,5
Zygomatic width	68,7	70,5	67,2	67,1	68,2
Width of brain case	40,0	41,2	39,5	38,6	39,0
Length of nasals mesially	30,5	35,5	30,8	32,3	30,1
Greatest breadth of nasals	10,8	12,1	10,4	12,5	11,1
Interorbital breadth	23,1	23,2	22,2	22,5	21,5
Palatal length	65,1	63,0	64,3	67,6	63,7
Breadth of palate betw. carnassials .	20,1	19,2	19,1	18,8	18,1
Postorbital breadth	19,5	19,0	20,7	15,7	18,5
Length of bullæ	20,1	20,0	21,2	20,1	20,0
Front of canine to back of last molar	53,8	53,7	51,7	54,1	54,0

***Viverra megaspila.* BLYTH.**

♀ Hat Sanuk, Siamese Malaya, $3\frac{1}{1}$ 1914. — Nose to vent = 780 mm.

The Burmese Civet seems to be rather rare in Siam at least in the parts of the country visited by the Expedition. The specimen obtained was the only one met with.

The colour of the fur agrees well with the description given by KLOSS (Journal Straits Branch, Royal Asiatic Society No. 53. 1909 p. 18).

Skull measurements:

Greatest length = 149,2; basicranial length = 139,2; condylobasal length = 145,7; zygomatic width = 72,0; greatest width of brain case = 43,7; length of nasals mesially = 40,0; greatest breadth of combined nasals = 10,9; least interorbital breadth = 27,0; least postorbital breadth = 30,1; palatal length = 75,4; breadth of palate between carnassials = 20,2; maxillary toothrow = 62,2 mm.

This species does not smell so strong of civet as the other species found in Siam viz. *Viverra zibetha pruinosa* WROUGHT.

***Paradoxurus hermaphroditus.* PALL.**

Plate IV. Fig. 1 & 3.

♀ Koh Lak, Siamese Malaya, $13\frac{1}{1}$ 1915. — Nose to vent = 587 mm.; tail = 515 mm. — ♂ Hue Sai, Siamese Malaya, $18\frac{1}{1}$ 1915. — ♀ imm. Hat Sanuk, Siamese Malaya, $\frac{1}{2}$ 1915. — Nose to vent = 405 mm. — ♀ imm. Hat Sanuk, Siamese Malaya, $21\frac{1}{2}$ 1915. — Nose to vent = 445 mm.

This Palm Civet was apparently very common in the parts of the Siamese Malaya visited by the Expedition. Like the other Civets it is easily trapped.

Skull measurements	♂	♀
Greatest length	113,8 mm.	111,0 mm.
Basicranial length	105,2 »	105,0 »
Condylobasal length	114,1 »	111,0 »
Zygomatic width	65,7 »	59,5 »
Width of brain case	36,0 »	37,2 »
Length of nasals mesially	21,0 »	21,5 »
Breadth of nasals anteriorly	11,0 »	11,8 »
Least interorbital width	19,5 »	19,5 »
Least postorbital width	12,1 »	11,9 »
Palate to henselion	50,1 »	44,5 »
Width of palate between sectorials	18,0 »	16,8 »
Length of upper toothrow	43,2 »	40,0 »
Length of bullæ	17,5 »	19,1 »
Breadth of bullæ to meatus auditiva	11,0 »	12,1 »

***Paradoxurus hermaphroditus ravus*. MILLER.**

♀ Hat Sanuk, Siamese Malaya. $23/2$ 1915. — Nose to vent = 555 mm.; tail = 500 mm.

In the Smithsonian Miscellaneous Collections Vol. 61 N:o 21, 1913, p. 2, Mr. GERRIT MILLER described a new race of a Palmcivet which he proposed to call *Paradoxurus hermaphroditus ravus*.

The new race was based on specimens collected by Doctor ABBOTT in Trang, Peninsular Siam.

It differs from true *Paradoxurus hermaphroditus* PALL. by having the ground colour of the upperparts of the body noticeably paler, almost grey. This agrees fairly well with one of my specimens collected at Hat Sanuk in the Siamese Malaya, but there is a light area on the basal part of the tail. This stands in contradiction to what is stated by MILLER about the type in which there is »no conspicuous light area of the basal third of the tail».

The skull does not show any considerable differences between that one of true *Paradoxurus hermaphroditus* PALL. in my Siamese collection with the exception that the postorbital constriction is very narrow, measuring only 10,2 mm. against 11,9 mm. in a female specimen of *Paradoxurus hermaphroditus* PALL.

The Palm Civets are very variable both as to size and colour but until more material has been available I have kept MILLER's name distinct.

*Skull measurements*¹:

Greatest length = 115,5; basiscranial length = 109,5; condylobasal length = 115,2 (104,5); zygomatic width = 62,5 (58,2); width of brain case = 36,1 (35,4); length of nasals mesially = 19,0; greatest breadth of combined nasals = 11,1; least interorbital breadth = 20,5 (18,0); least postorbital breadth = 10,2; length of palate from henselion = 48,8; breadth of palate between sectorials = 18,3; length of bullæ = 18,8; maxillary toothrow = 43,0 mm.

***Paradoxurus hermaphroditus laotum*, subsp. n.**

Plate IV. Fig. 2 & 4.

♂ Chieng Hai, Upper Siam, $15/8$ 1914. — Nose to vent = 640 mm.; tail = 530 mm.; ear = 50 mm.

A single male specimen of this new race of the Palm Civet was shot in a bamboo clump just outside the town of Chieng Hai in Upper Siam on the 15th of August 1914.

Diagnosis:

Like *Paradoxurus hermaphroditus* PALL. but larger. The black longitudinal stripes on the back are well-defined and are running down to the root of the tail where they unite forming a median band. The lateral bands are fairly distinct and form three rows; on the hinder parts of the body they are replaced by rows of black spots. The

¹ Measurements in parenthesis are those of the female type specimen according to MILLER.

terminal half of the tail black which is continued into the median black line on the middle of the back. Across the forehead a broad white band, extending on the neck to behind the ears. Below the eyes there is a white spot. Sides of the muzzle white. The white frontal band is divided in the middle by a narrow black vertical line running up to the crown. Ears black with the inner margin of the couch white. Underfur ashy; individual hairs with narrow black tips. Fur short (about 32 mm. on the back). Hands, feet and distal half of the tail black. Basal part of the tail of the same colour as the back.

The skull resembles that of *Paradoxurus hermaphroditus* PALL., but is larger and more robust. The bullæ are very high and slightly rounded off anteriorly. The last molar is rather small, much smaller than in true *P. hermaphroditus* PALL. or *P. hermaphroditus ravus* MILLER.

Skull measurements of type:

Greatest length	119,2 mm. (113,8 mm. ¹)
Condylobasal length	117,6 " (114,1 ")
Basilar length	112,0 "
Zygomatic width	72,5 " (65,7 ")
Width of brain case	38,0 " (36,0 ")
Least interorbital width	20,5 " (19,5 ")
Least postorbital width	12,1 " (12,1 ")
Length of nasals mesially	19,8 " (21,0 ")
Breadth of nasals anteriorly	11,0 " (11,0 ")
Palatal length	50,0 " (50,1 ")
Length of bullæ	23,0 " (17,5 ")
Upper tooththrow (c—m ²)	43,0 " (43,1 ")
Lower tooththrow (c—m ₃)	48,0 "

Mungos urva. HODGS.

♂ Hat Sanuk, Siamese Malaya, ²¹/₂ 1915. — Nose to vent = 540 mm.; tail = 325 mm. — ♀ Hat Sanuk ²¹/₂ 1915. — Nose to vent = 530 mm.; tail = 308 mm. — ♀ Hat Sanuk ³¹/₁ 1915. — Nose to vent = 520 mm. — ♀ Hat Sanuk ¹⁷/₂ 1915. — Nose to vent = 515 mm. — ♀ Hat Sanuk ²²/₂ 1915. — Nose to vent = 510 mm.

The Crab-eating Mongoose was exceedingly common in the forests on the boundary between Siam and Tenasserim. It seems to be somewhat aquatic and all the specimens obtained were shot at the numerous small «nongs» which were found in that region. They were generally seen in pairs coming down to feed or to drink and were very quick and agile in their behavior. The drawing in BLANDFORD's Mammalia of British India, Ceylon and Burma is quite excellent and shows exactly the behavior and position of this species when coming down to drink.

The whole series is very uniform as to the general colouration. In old specimens with much worn teeth the orbits are quite closed.

¹ Measurements in brackets are those of a typical male specimen of *P. hermaphroditus* PALL. of about the same age. Collected at Hue Sai, Siamese Malaya, ¹⁸/₁ 1915.

In the parts of Northern Siam visited by the Expedition the Crab-eating Mongoose was never met with, though it probably occurs. Outside Siamese territory it has been recorded from the South-eastern Himalayas, Assam, Burma and China but has not been obtained in the southern parts of the Malay Peninsula, nor did ROBINSON & KLOSS meet with it during their recent trip to the Siamese Province of Bandon.

Skull measurements	♀	♀	♀	♀	♂
Greatest length	98,0 mm.	101,6 mm.	101,0 mm.	97,0 mm.	— mm.
Basicranial length	91,9 »	92,3 »	91,6 »	90,1 »	— »
Condylobasal length	97,5 »	97,5 »	97,0 »	95,2 »	— »
Zygomatic width	53,1 »	53,5 »	54,3 »	54,3 »	— »
Width of brain case	34,9 »	35,6 »	37,2 »	— »	— »
Length of nasals mesially	21,3 »	18,8 »	— »	— »	20,0 »
Greatest breadth of nasals	11,5 »	10,0 »	10,2 »	10,2 »	10,5 »
Least interorbital width	20,5 »	18,5 »	19,2 »	20,0 »	18,7 »
Length of palate from hensenion	51,2 »	52,3 »	51,6 »	51,5 »	51,8 »
Least postorbital width	13,2 »	16,0 »	17,0 »	16,5 »	15,5 »
Breadth of palate between sectorials	15,0 »	15,5 »	14,2 »	15,1 »	15,3 »

Felis tigris. LINN.

The Tiger is generally distributed throughout the whole of Siam though nowhere very abundant. It occurs, however, as well in the mountainous regions of the North as in the southern districts.

At the neighbourhood of Pa Hing, a small village some distance south-east of Chieng Mai, the tigers were fairly abundant at the time of my visit and numbers of fresh tracks were seen at several occasions.

In the Siamese Malaya I only observed their tracks a few times among the mountains on the boundary to Tenasserim as for instance at the neighbourhood of Hat Sanuk.

North of the town of Nakorn Lampang a man-eating tiger had done a lot of damage until it was shot by one of the natives. It turned out to be a very old male which had its teeth almost worn off.

Felis pardus variegata. WAGN.

♀ Koh Lak, Siamese Malaya, ¹⁹/₁₂ 1914. — Nose to vent = 995 mm.; tail = 595 mm.; ear = 80 mm. — ♂ Hat Sanuk, near the boundary between Siam and Tenasserim, ³⁰/₁ 1915. — Nose to vent = 1270 mm. — ♀ Hat Sanuk ²²/₂ 1915. — Nose to vent = 1000 mm.; tail = 635 mm.

Leopards were apparently not very common in the parts of Northern Siam visited during my last journey and their tracks were only observed at a few occasions. In the Siamese Malaya, however, and especially along the Tenasserim border these beasts were

quite common and three specimens were trapped in rather a short time near my camping place. Their fresh tracks were observed several times during my excursions in the neighbouring jungles.

The female specimen obtained at Hat Sanuk was very old and had its teeth much worn. It contained two young foetuses, in which, though quite small, the black spots were already very well-marked indeed.

The male specimen was rather large and very fierce. It had probably been caught early in the morning and when I came out to have a look at the traps it at once attacked me. Fortunately enough the trap was very heavy and the leopard could not move quick enough to get at me. It had moved the trap a short distance into a dense place from which it suddenly jumped at me growling furiously. It was, however, instantly killed with a shot of my shot gun.

Skull measurements	♂	♀	♀
Greatest length	212,0 mm.	174,5 mm.	168,0 mm.
Basicranial length	175,0 "	148,5 "	144,5 "
Condylbasal length	187,0 "	161,0 "	156,0 "
Zygomatic width	132,0 "	112,0 "	109,5 "
Width of brain case	72,8 "	63,8 "	65,6 "
Length of nasals mesially	50,0 "	43,0 "	40,5 "
Breadth of nasals anteriorly	33,1 "	29,0 "	27,0 "
Least interorbital breadth	39,1 "	29,8 "	30,0 "
Least postorbital breadth	43,0 "	40,0 "	42,0 "
Palatal length	85,5 "	75,2 "	69,0 "
Breadth of palate betw. last molars	62,0 "	53,2 "	52,0 "
Length of bullæ	34,1 "	33,5 "	31,0 "
Length of upper sectorial	24,5 "	22,0 "	22,0 "
Maxillary toothrow	67,0 "	56,0 "	55,5 "

***Felis nebulosa.* GRIFFITH.**

The Clouded Leopard inhabits the mountain forests of Northern Siam though it does not seem to be very common and very little is known about it.

The dense jungles at Pa Hing and Pak Koh, both small villages south-east of Chieng Mai, seemed to be favourable resorts for all kinds of big cats and during my stay there a fine male specimen was trapped.

At Pak Koh I had some small traps put out in the jungles in order to catch some Civets and once a Clouded Leopard had been in the trap which was baited with a bullock head. However, it got away having taken the whole trap and the anchor up in a neighbouring tree where the trap was found twisted among the branches.

Felis temminckii. VIG. & HORSE.

The Golden Bay Tiger Cat is apparently rather rare in Siam. A fine male specimen was, however, caught in a trap near Pa Hing on the 15th of March 1914. The trap was put out in an evergreen jungle in order to catch a tiger and the bait consisted of a bullock-head.

According to the natives this species is very fierce and it will even attack a tiger if they happen to meet at the same kill. In Siamese it is called »sua fai».

My specimen, which is an adult male, measures from the tip of the nose along curve of back to the root of the tail 830 mm.; tail = 420 mm.

Skull measurements:

Greatest length = 144,0; basicranial length = 120,5; condylobasal length = 129,0; width of brain case = 55,8; length of nasals mesially = 30,0; breadth of nasals anteriorly = 18,8; Least interorbital breadth = 23,2; least postorbital breadth = 30,1; length of bullæ = 30,5; maxillary toothrow = 42,0; length of upper sectorial = 16,1 mm.

Petaurista lylei. BONH.

Proc. Zool. Soc. 1900. p. 192.

♂ Pak Koh, Northern Siam, ²⁰/₃ 1914. — ♀ Pak Koh, Northern Siam, ¹⁸/₃ 1914. — Nose to vent = 495 mm.; tail = 605 mm.; ear = 55 mm. — ♀ Koon Tan, Northern Siam, ²²/₅ 1914.

During my journey in Northern Siam I was fortunate enough to get three specimens of this large and beautiful Flying Squirrel. They are apparently never on the move during daytime but appear just at dusk. They are then rather easy to get, especially during moonlight nights, because of their habit always to keep to certain trees which are rich in eatable fruits. It was very interesting to look at them when they were moving from tree to tree. They then always climbed up to the top of some high tree from which they suddenly »flew» away to another tree using their large parachute, which they kept quite steady. As a rule they could »fly» for about 50 metres but they were of course always sinking down considerably.

The two specimens obtained at Pak Koh fairly well agree with the description given by BONHOTE for the type. Some slight differences are, however, to be noticed. The drawing of *Petaurista lylei* in the Proceedings of the Zoological Society 1900 does not seem to be quite correct, at least the specimens in my collection do not agree very well with it. In my specimens the upper parts of the body are not of such a whitish grey colour as is shown on the plate, nor are the white spots on the sides of the head very well-marked.

Another specimen obtained a few miles further north and at an higher altitude somewhat differs from the other two specimens. In this specimen the underparts of the body and the parachute are decidedly more rufous, except the middle of the abdomen which is almost white. The area surrounding the forelegs is pure black almost forming a large triangular spot. The edge of the parachute is not black for its whole length, the black

area being only confined to an area at the feet. Round the ear-opening there is a distinct circle formed by salmon coloured hairs, each hair being black at the base. Behind the ear there is a very distinct black patch.

In my specimens the tail is about 10 cm. longer than the length of the body from the tip of the nose to the vent, why BONHOTE's statement that the tail is only slightly longer does not seem to be correct.

The females seems to be larger than the males. The skulls of the females are characterized from those of the males by their long and pointed rostrum. Only in one of my specimens (♀) do the nasals extend backwards beyond the premaxillare, in the other two specimens the premaxillare extends a short distance behind the posterior extremity of the nasals. On the frontals there is a large groove between the orbits and that groove is very well-marked indeed in the male specimen in my collection.

Skull measurements	♂	♀	♀
Greatest length	72,4 mm.	78,3 mm.	80,0 mm.
Condylus to gnathion	70,0 »	74,0 »	76,2 »
Basicranial length	68,1 »		—
Zygomatic width	50,2 »	49,0 »	51,0 »
Least interorbital width	18,0 »	16,1 »	19,3 »
Least postorbital width	18,3 »	17,8 »	19,3 »
Width of brain case	32,0 »	32,0 »	32,3 »
Length of nasals mesially	21,2 »	25,2 »	24,1 »
Breadth of nasals anteriorly	13,1 »	14,6 »	13,8 »
Breadth of nasals posteriorly	7,6 »	8,0 »	8,5 »
Diastema	15,0 »	17,0 »	16,0 »
Distance from lachrymal notch to tip of nasals	25,0 »	27,6 »	28,2 »
Maxillary tooththrow	17,3 »	18,0 »	18,8 »

Ratufa phæopepla marana. THOS. & WROUGHT.

Journ. Bombay Nat. Hist. Soc. vol. 24 N:o 2. 1916 p. 227.

♀ Koon Tan, Northern Siam, ²⁹/₅ 1914. — Nose to vent = 395 mm.; tail = 545 mm.; ear = 33 mm.
— ♀ Koon Tan ⁵/₆ 1914. — Nose to vent = 400 mm.; tail = 545 mm. — ♀ Koon Tan ¹¹/₁ 1914. —
Nose to vent = 405 mm.; tail = 439 mm. — ♀ Koon Tan ⁵/₆ 1914. — Nose to vent = 385 mm.; tail =
520 mm. — ♀ Pak Koh, Northern Siam, ¹⁰/₁ 1914. — Nose to vent = 360 mm.; tail = 515 mm.

The whole series of this fine Squirrel is very uniform and in all specimens, except that one shot at Pak Koh, the colour of the upper parts of the body is pure brownish black. In the Pak Koh specimen the procedure by THOMAS called »bleaching» is very evident the general colouration of this specimen being nearest »verona brown» of RIDGEWAY.

This species, which generally goes about single, is found in bamboo-jungles as well as in the evergreen forests, and seems entirely to be found in hilly country. It is not very shy and rather easy to obtain.

The type of this species originally was described from Burma but it also occurs in Northern Siam. It is very similar to *Ratufa melanopepla peninsulæ*, MILLER, from the southern parts of the Malay Peninsula, but may always be distinguished by its larger size. In Northern Siam another member of the Group the *Ratufa gigantea* MC CLELL. is also said to occur (vide WROUGHTON, Journ. Bombay Nat. Hist. Soc., vol. 19, 1910 p. 890). This latter form is characterized by its large size and by having tufted ears. During my journey I, however, never met with this form, which therefore seems to be very rare.

Skull measurements	♀	♀	♀	♀	♀
Greatest length	76,8 mm.	76,8 mm.	75,0 mm.	74,0 mm.	74,0 mm.
Condylus to gnathion	70,5 "	71,5 "	—	67,1 "	68,0 "
Basicranial length	66,2 "	—	—	62,6 "	63,0 "
Zygomatic width	48,0 "	47,6 "	46,0 "	45,5 "	44,0 "
Width of brain case	32,5 "	32,6 "	32,5 "	32,5 "	32,0 "
Least interorbital breadth	31,0 "	32,0 "	31,2 "	29,5 "	29,0 "
Least postorbital breadth	24,0 "	25,0 "	25,0 "	25,0 "	24,3 "
Mastoid width	32,5 "	33,6 "	32,0 "	31,7 "	32,0 "
Length of nasals mesially	24,0 "	25,5 "	23,2 "	22,0 "	23,0 "
Breadth of nasals anteriorly	13,0 "	13,4 "	13,1 "	13,2 "	12,8 "
Breadth of nasals posteriorly	8,5 "	10,3 "	7,5 "	7,2 "	7,5 "
Diastema	15,0 "	15,0 "	15,2 "	15,5 "	15,0 "
Palatal length from henselion	28,0 "	27,1 "	27,0 "	27,0 "	27,1 "
Length of upper molar series	15,3 "	14,5 "	15,2 "	15,0 "	15,1 "

Still another form has recently been obtained in South-eastern Siam by Mr. C. BODEN KLOSS and described by him under the name of *Ratufa melanopepla leucogenys*. (Proc. Zool. Soc. London 1916 p. 43.) This race is said to be nearest to that one of the Malay Peninsula viz. *Ratufa melanopepla peninsulæ*, MILLER, but may be distinguished by its pale yellow colouration and by having a large yellow patch on the hindfoot. The yellow of the fore limb is greater in extent and reaches to the base of the toes. As suggested by BODEN KLOSS (tom. cit. p. 43) the specimen obtained by me at Sakerat 1912 and recorded under the name of *Ratufa melanopepla*, MILLER (Arkiv för Zoologi, Band 8. N:o 23. p. 15. 1914) belongs to this form and possesses all the characteristics pointed out by KLOSS.

Sciurus castaneoventris gordonii. ANDERS.

♂ Doi Par Sakeng, Northwestern Siam, ¹¹/₇ 1914. — Nose to vent = 215 mm.; tail = 195 mm.; hindfoot = 50,5 mm. — ♀ Doi Par Sakeng ²⁸/₆ 1914. — Nose to vent = 217 mm.; tail = 215 mm.; hindfoot = 51 mm. — ♀ Doi Par Sakeng ¹⁸/₇ 1914. — Hindfoot = 51 mm. — ♀ Ban Meh Na, Northwestern Siam, ²¹/₆ 1914. — Nose to vent = 200 mm.; tail = 200 mm.; hindfoot = 51 mm. — ♀ Ban Meh Na ²¹/₆ 1914. — Nose to vent = 195 mm.; tail = 210 mm.; hindfoot = 50,5 mm.

The whole series is very uniform as to the colouration. In the specimens collected in June the underparts of the body are darker and almost chestnut, while in the specimens

obtained in July the lower surface is cinnamon rufous. The median grizzled line is, however, fairly well-marked in all my specimens.

This species seems entirely to be confined to the mountain forests and was by no means common in the parts of the country visited by the Expedition. It has, however, been recorded a few times from Northern Siam before viz. from the Doi Sutep near Chieng Mai (BONHOTE Proc. Zool. Soc. 1902 vol. I p. 39).

Skull measurements	♂	♀	♀	♀	♀
Greatest length	51,5 mm.	53,2 mm.	52,3 mm.	52,5 mm.	—
Condylus to gnathion	47,1	—	46,9 »	48,5 »	—
Basicranial length	44,1	—	43,9	44,2 »	—
Zygomatic width	29,5	31,2 »	30,5 »	31,2 »	—
Width of brain case	23,3	23,2	23,6	23,1	—
Least interorbital width	17,5 »	18,1	17,5	18,1	—
Breadth between meatus auditiva	21,3 »	22,5	20,8	21,6	—
Length of nasals mesially	15,0 »	16,5	15,1	15,7	—
Breadth of nasals anteriorly	6,8	6,2	6,9	6,8	—
Breadth of nasals posteriorly	3,6	4,1	3,1	3,3	—
Diastema	10,5	11,6	10,2	12,0	11,1 mm.
Length of palate from henselion	20,3	22,5	21,3	21,5	22,2
Maxillary tooththrow	10,2	10,0	10,3 »	9,6	10,5

Sciurus caniceps. BLYTH.

♂ Pak Koh, Northern Siam, ¹⁷/₃ 1914. — Tail = 255 mm.; hindfoot = 53 mm. — ♂ Pak Koh ²¹/₃ 1914. — Tail = 280 mm.: — ♂ Ban Kon, Northern Siam, ¹¹/₁₀ 1914. — Nose to vent = 210 mm.; tail = 230 mm.

All the specimens obtained are in their bright pelage, even that one shot in October. In the Annals and Magazine of Natural History ser. 7. Vol. 7. 1901 p. 271. BONHOTE states that the dull pelage is worn from March to November. This statement seems, however, to be misleading while the specimen shot on the 11th of October is in its bright pelage.

Skull measurements	♂	♂	♂
Greatest length	56,8 mm.	58,0 mm.	54,1 mm.
Condylus to gnathion	51,6	50,0	49,0 »
Basicranial length	48,3	—	45,2
Zygomatic width	31,7	33,0	31,9 »
Greatest width of brain case	24,2	25,0	24,3
Length of nasals mesially	16,8	17,5	16,1 »
Breadth of nasals anteriorly	6,7	6,7	7,2 »
Breadth of nasals posteriorly	4,6	5,0	4,8 »
Least interorbital breadth	18,6	19,9	18,6
Least postorbital breadth	18,3	20,0	18,2 »
Diastema	12,9	12,9	12,2 »
Length of palate to henselion	24,1	24,0	23,0 »
Maxillary tooththrow	10,8	10,7	10,5 »

Sciurus helgei sp. n.

Plate VI. Fig. 3—4.

♂ Koh Lak, Siamese Malaya, ²⁹/₁₁ 1914. — Head and body = 190 mm.; tail = 228 mm.; hindfoot = 42 mm. — ♂ Koh Lak ²⁹/₁₁ 1914. — Head and body = 185 mm.; tail = 219 mm.; hindfoot = 42 mm.

This fine species is nearest related to *Sciurus caniceps concolor* BLYTH. from which it may, however, be easily distinguished by its much smaller size and somewhat differing colour.

Both my specimens were shot on a peninsula a few miles south of Koh Lak, a small town situated at about Lat. N. 11° 45'. The whole peninsula was covered with a very dense vegetation making progress very difficult, and the bare rock was only visible at a few places where some limestone mountains raised their ragged peaks against the sky. The vegetation chiefly consisted of a cacté which was found in dense masses along the shores making the landing rather troublesome. Towards the mainland a large area of land was occupied by an impenetrable mangrove swamp and the whole peninsula had years ago probably been an island. A form of a squirrel had then by and by been developed. The discovery of this small squirrel is one of the most noteworthy facts met with by the Expedition. Unfortunately only two specimens were collected but the squirrel seemed to be very common and numbers were met with.

Colour: General colouration above grizzled black and »chamois» (DAUTHENAY, Rep. de Couleurs. plate 325). Individual hairs on the back black at the base and at the tip and with one or two bands of chamois. Head, crown, hands and feet slaty grey, almost all the hairs with white tips producing a grizzled appearance; legs slaty grey faintly washed with chamois; nose and muzzle white; whiskers black; underparts slaty grey; tail of about the same colour as the back, though perhaps a trifle more yellowish, each hair having 4 black annulations and a narrow black tip which gives the tail a banded appearance; tip of tail pure black.

Skull: The skull may be distinguished from that one of *Sciurus caniceps concolor* BLYTH. by its smaller size and shorter rostrum. The incisive foramina are shorter and narrowing off anteriorly. The nasals are very short but the breadth anteriorly and posteriorly does not differ considerably from that of *S. c. concolor*.

Type: Adult male collected on the 29th of November 1914 at the neighbourhood of Koh Lak.

External measurements of type:

Head and body = 185; tail = 219; hind foot (measured in skin) = 42 mm.

Another male specimen obtained on the same date and at the same locality measures as follows: head and body = 190; tail = 228; hindfoot = 42 mm.

Skull measurements of type (measurements in parenthesis are those of the other male):

Greatest length = 50,0 (51,0); length from condylus to gnathion = 45,4 (46,1); basicranial length = 42,1 (43,0); zygomatic width = 28,0 (28,5); width of brain case above roots of zygomata = 23,1 (22,8); length of nasals mesially = 14,0 (14,2);

breadth of nasals anteriorly = 6,5 (6,3); breadth of nasals posteriorly = 4,0 (3,3); breadth between meatus auditiva = 20,6 (21,0); least interorbital breadth = 16,0 (16,3); least postorbital breadth = 18,2 (17,8); diastema = 10,8 (10,6); length of palate from henselion = 21,5 (21,6); maxillary toothrow = 10,2 (10,3) mm.

I have had the pleasure of naming this fine and characteristic squirrel after the R. Siamese Consul in Stockholm, Mr. HELGE AX:SON JOHNSON, who has shown such a great interest about the scientific exploration of Siam.

***Sciurus epomophorus davisoni.* BONH.**

Ann. Mag. Nat. Hist. ser. 7. Vol. 7. 1901 p. 273.

♀ Koh Lak ²⁰/₁₁ 1914. — Nose to vent = 202 mm.; tail = 229 mm. — Hindfoot (measured in skin) = 49 mm.

This species was fairly common at the neighbourhood of Koh Lak in the Siamese Malaya, but it was never met with among the mountains on the boundary to Tenasserim. It seems to be exclusively confined to the low-lying country and was most common in kampong land and especially near towns and villages.

The specimen obtained has two rufous buff spots on the lower surface of the body opposite the thighs. The yellowish spot on the sides of the neck, which is a point of characteristic to this species, is, however, ill-defined and not very obvious.

An allied form has been described by ROBINSON & WROUGHTON under the name of *Sciurus epomophorus milleri* based on specimens from Trang in the Siamese Malay States. In this form the flank- and neck patches are distinctly marked, though they are paler than in typical *Sciurus epomophorus*.

Sciurus epomophorus davisoni which inhabits Burma to the south of Tenasserim is very similar to typical *Sciurus epomophorus* BONH., but it may always be distinguished from that species, because the rufous patch on the neck is replaced by a similar patch of a yellowish tinge; the lateral lines are almost invisible and generally replaced by two pale rufous spots on the under parts of the body just opposite the thighs. In some specimens, however, there is a trace of rufous at the base of the tail too.

Skull measurements:

Greatest length: 55,1; condylus to gnathion: 49,1; basicranial length: 46,2; zygomatic width: 31,3; width of brain case at the root of zygomata: 23,7; length of nasals mesially: 16,2; breadth of nasals anteriorly: 6,9; breadth of nasals posteriorly: 4,0; length between meatus auditiva: 22,1; least interorbital width: 18,7; least postorbital width: 18,2; width between tips of postorbital processus: 27,5; diastema: 11,0; length of upper molar series: 10,8; length of palate to henselion: 22,4 mm.

***Sciurus atrodorsalis.* GRAY.**

♂ Koh Lak ¹¹/₁₂ 1914. — ♀ Koh Lak ²/₁₂ 1914. — ♀ Koh Lak ²⁶/₁₁ 1914. — ♀ Koh Lak ¹⁹/₁ 1915. — ♂ Hue Sai ¹⁷/₁ 1915.

This species was very common at the neighbourhood of Koh Lak in the Siamese Malaya, where it mostly occurred outside the villages. Only one specimen was obtained among the mountains on the border to Tenasserim.

Like other Oriental Squirrels this species seems to be very variable, especially as concerns the colour of the underparts of the body. The rufous colour generally seems to mingle into orange. In the female shot at Koh Lak on the 26th of November the underparts are almost chestnut and of about the same colour as the lower surface in *Sciurus castaneoventris gordonii* ANDERS. The black dorsal area is only faintly visible, most clearly in the specimen from Hue Sai.

A near ally to *Sciurus atrodorsalis* is *Sciurus rubeculus* described by MILLER on specimens from Trang in Peninsular Siam. According to MILLER his *Sciurus rubeculus* is clearly distinguished from true *S. atrodorsalis* by its greater size. The frontals are also nearly flat and not concave as in *S. atrodorsalis*.

MILLER (Smithsonian Misc. Coll. vol. 45. 1903 p. 22) gives the median length of the nasals in an adult female of *S. atrodorsalis* from Kokareet in Tenasserim to 14,6 mm. None of my specimens have the nasals longer than 14,5 mm. and that is a male. Another old male in my collection has the nasals only measuring 12,9 mm.

ROBINSON & KLOSS have recently described (Ann. Mag. Nat. Hist. ser. 8 vol. 13. 1914 p. 224) a species from the mountain regions of the southern two-thirds of the Malay Peninsula under the name of *Sciurus erythroëus youngi*. This species is said to be closely allied to *Sciurus rubeculus* MILLER though »somewhat smaller and duller in colour, the head and tail lacking the golden-orange suffusion so conspicuous in that race».

Measurements	♂	♀	♀	♀	♂
Nose to vent	205 mm.	165 mm.	207 mm.	190 mm.	235 mm.
Tail	180	205	152	195	185
Skull: greatest length	49,7	—	—	50,4	52,1
condylus to gnathion	44,6	—	—	45,5	47,1
zygomatic width	27,5	29,5	28,0	29,2	30,2
interorbital width	16,2	18,0	16,1	17,0	18,8
postorbital width	—	—	17,2	18,0	18,5
width of brain case	22,5	—	22,1	22,7	23,6
length of nasals mesially	14,5	14,1	13,0	13,2	12,9
breadth of nasals anteriorly	6,1	6,0	6,2	6,5	7,0
breadth of nasals posteriorly	3,0	2,5	3,0	3,0	3,0
diastema	10,0	10,4	10,0	10,0	11,0
palate to hensenion	20,2	—	20,1	20,3	21,0
length of incisive foramina	3,0	3,0	2,5	3,7	2,9
length of upper molar series	10,0	10,1	9,0	10,1	9,9

Sciurus ferrugineus cinnamomeus. TEMM.

♂ Pak Koh, Northern Siam, ¹⁵/₃ 1914. — Hindfoot = 53 mm. — ♂ Pak Koh ¹³/₄ 1914. — Tail = 250 mm.; hindfoot = 53 mm.

When working out the Squirrels belonging to the difficult *finlaysoni*-Group I have come to the conclusion that the Burmese *Sciurus ferrugineus* CUV. and the Siamese *Sciurus cinnamomeus* TEMM. are not worthy of being given a specific name, but are only to

be considered as a subspecies of *Sciurus ferrugineus*. These two forms are merely differentiated from each other, the Siamese form having the feet golden red while in the Burmese form the feet are always black. Mr. C. BODEN KLOSS comes to the same conclusions in his tentative notes on the *Sciurus finlaysoni* Group (Journal Nat. Hist. of Siam vol. I. No. 4. 1915 p. 225—228).

Sciurus ferrugineus cinnamomeus seems to be fairly common in the dry forests of Northern Siam. Both my specimens show a slight tendency of developing a whitish tail-tip. No white specimens were obtained or observed during the whole journey.

Skull measurements of a male specimen:

Greatest length = 55.7; condylus to gnathion = 51.2; basicranial length = 48.8; zygomatic width = 31.9; width of brain case = 23.2; least interorbital width = 19.4; breadth between meatus auditiva = 22.3; length of nasals mesially = 16.6; greatest breadth of nasals = 7.3; diastema = 12.0; length of palate to henselion = 22.6; length of upper molar series = 10.8 mm.

***Sciurus bocourti gruti* subsp. n.**

♂ Koon Tan, Northern Siam, ¹³/₅ 1914. — Nose to vent = 230 mm.; tail = 219 mm.; hindfoot = 52 mm. — ♂ Koon Tan ⁵/₅ 1914. — Nose to vent = 217 mm.; tail = 155 mm.; hindfoot = 52 mm. — ♀ Koon Tan ¹⁰/₉ 1914. — Nose to vent = 220 mm.; tail = 218 mm.; hindfoot = 52 mm. — ♀ Bang Hue Pong, Northern Siam, ²⁷/₅ 1914. — Nose to vent = 218 mm.; tail = 219 mm.; hindfoot = 52 mm. — ♀ Bang Hue Pong ²⁷/₅ 1914. — Nose to vent = 280 mm.; tail = 225 mm.; hindfoot = 52 mm. — ♀ Bang Hue Pong ⁸/₅ 1914. — Nose to vent = 214 mm.; tail = 229 mm.; hindfoot = 52 mm. — ♀ Bang Hue Pong ⁸/₅ 1914. — Nose to vent = 212 mm.; tail = 244 mm.; hindfoot = 52 mm.

A member of the *Sciurus finlaysoni* Group and the largest of the hitherto known forms.

This new race which apparently is a mountain-form, being found only among the Koon Tan mountains in Northern Siam, comes nearest to *Sciurus bocourti lylei* WROUGHT. though it is still larger, with a hindfoot measuring 52 mm. against 49 mm. in that species. The general colouration is also different though like the other members of the same Group of Squirrels. In *Sciurus bocourti lylei* there is according to WROUGHTON «a complete absence of either red or brown in the coat above».

Of the specimens examined six are fairly similar as to the colouration of the pelage. They are all characterized by having the face, crown and a broad longitudinal line on the hindneck of a colour nearest to «Sanfords brown» (RIDGWAY plate II). Hands and feet grizzled black and orange, the feet somewhat darker. Individual hairs on the back black with one pale yellowish-white ring varying in size. The base of the tail on the upper surface of the same colour as the back for about 50 mm., then whitish for about 35 mm. followed by a narrow blackish band; rest of tail bright maroon with the bases of the hairs black. Underparts rusty red.

Type: Adult female, collected at Bang Hue Pong on the southern slopes of Loi Koon Tan, on the 8th of May 1914.

Another specimen shot in September at Koon Tan has the underparts of the same rusty red colour. The back, however, is almost whitish except for an indication of a

blackish median line. Individual hairs with the basal part white and with a narrow black tip; underfur nearest »Sanfords brown» of RIDGWAY. The rest of the pelage as in the other specimens. The tail is on the upper surface for its basal part (about 60 mm.) exactly of the same colour as the back though divided into two parts by a narrow black line; the rest is bright maroon. The hairs on the tip of the tail are black for their basal part. The hands and feet are black grizzled with brownish red and grey.

It therefore seems to be evident that this species, as well as the other members of the same group, undergoes a seasonal variation.

I have had the pleasure in naming this fine race of squirrel after Mr. W. L. GRUT, the Director of the Siam Electricity Company and one of the most active members of the Natural History Society of Siam.

Skull measurements	♀ type	♀	♀	♀	♀	♂	♂
Greatest length	54,5 mm.	54,0 mm.	54,5 mm.	54,0 mm.	55,0 mm.	55,0 mm.	54,5 mm.
Condylus to gnathion	50,2	—	—	—	50,1	49,3 »	—
Basiscranial length	46,9	—	—	—	47,7	—	—
Zygomatic width	31,5	33,3	32,0 »	31,5	33,0	31,6 »	31,6
Width of brain case	23,8	23,2	22,6 »	25,0	24,0	24,3	23,8 »
Width between tips of postorbital process	29,0	29,2	29,1	27,5	30,0	28,0 »	28,1
Least interorbital width	19,1	20,1	19,8 »	19,3	20,4	19,5	19,2 »
Breadth between meatus auditoria	22,5	23,0	22,5	23,0 »	23,1	22,3	22,0 »
Length of nasals mesially	15,2	16,3	16,3	16,0	15,7	16,2	16,2 »
Breadth of nasals anteriorly	7,2	7,3	7,8	6,3	7,3	7,1	7,8 »
Length of diastema	11,0	10,8	11,5	11,3 »	12,2	11,9 »	11,5 »
Palate to hensenion	22,5	21,8	22,0	22,0 »	22,7	22,1 »	21,7
Length of upper toothrow	10,8	10,9	10,2	10,6 »	10,1	10,3 »	10,1 »

Menetes berdmorei consularis. THOS.

OLDFIELD THOMAS has recently (Journ. Bombay Natural History Society. Vol. 23 No. 1 1914 p. 23—25) discussed the different races of *Menetes berdmorei*. He also describes several new subspecies and among them a form called *M. berdmorei consularis* THOS., based on specimens from Nan in Northern Siam. This new race differs from the other known forms in the following particulars according to THOMAS. »There are no median dorsal stripes or upper dark lateral ones, the only dark streak being that between the light lateral streaks and even that is absent in January and February. Under surface yellowish white.»

During my stay in Upper Siam I only collected two specimens (both females) of this squirrel, the one was shot at Chum Poo on the 3rd of May 1914 and the other at Koon Tan on the 7th of June 1914. Both these specimens agree fairly well with the description of *Menetes berdmorei consularis* as given by THOMAS. There is not the slightest sign of a dark median dorsal stripe, but the colour and the extent of the dark stripe between the lighter lateral ones seems to be rather variable. In the Koon Tan specimen

it is very well-marked and about 8 mm. broad. In both my specimens the lower light lateral streak is quite indistinct and very obscurely indicated. Even the upper one is not very prominent and of a buffy colour in the Koon Tan specimen instead of yellowish white as in the other.

The underparts are not yellowish white but greyish white with a faint yellowish tinge. Both my specimens are slightly larger, measuring from nose to vent 190 & 205 mm. respectively against 179 mm. in the type.

The skulls, however, are practically identical as seen by the following measurements (those in brackets are those of the type as recorded by THOMAS. The type was an immature female collected at Nan in Northern Siam).

♀ Koon Tan $\frac{7}{6}$ 1914.	♀ Chum Poo $\frac{3}{5}$ 1914.
Nose to vent 190 mm	Nose to vent 205 mm.
Tail 145 »	Tail 150 »
Hindfoot 40 »	Hindfoot 40 »

Skull measurements.

Greatest length	48,0 & 48,9 mm. (49,0 mm.)
Condylus to gnathion	45,3 & 46,0 »
Basiscranial length	43,0 & 41,5 »
Zygomatic width	25,7 & 25,8 (25,5 mm.)
Width of brain case	20,0 & 20,0 »
Length of nasals mesially	14,0 & 13,5 »
Greatest breadth of nasals	5,8 & 5,5 »
Breadth between meatus auditiva	— & 19,9 »
Least interorbital width	12,3 & 12,0 »
Diastema	11,7 & 12,0 »
Palatilar length	22,0 & 23,0 (23,0 mm.)
Upper molar series	10,8 & 10,0 »

***Menetes berdmorei koratensis* subsp. n.**

Two specimens of a squirrel belonging to the *Menetes berdmorei* Group and by me referred to typical *Menetes berdmorei* BLYTH. in my former paper about the Mammals of Siam (Arkiv för Zoologi, Band 8 No. 23 p. 15) most certainly belong to an hitherto undescribed race which I propose to name *Menetes berdmorei koratensis*.

During my last Expedition to Siam I obtained some specimens from different localities in Northern Siam and between these specimens and those obtained at the neighbourhood of Sakerat on the Korat plateau in Eastern Siam considerable differences are to be seen. In the Northern parts of the country the race described by THOMAS under the name of *Menetes berdmorei consularis* occurred.

In his recently published review of the *Menetes berdmorei* Group (Journ. Bombay Nat. Hist. Soc. vol. 23. No. 1. 1914 p. 23—25) Mr. OLDFIELD THOMAS discussed and described some new geographical races of this squirrel. None of the hitherto known forms exactly matches the specimens in my collection and I have therefore been compelled to describe this race under a new name.

The new race, which probably only inhabits the Eastern parts of Siam and the adjoining parts of Tonkin may chiefly be characterized by its small hindfoot and its short muzzle. The general colouration is also somewhat different, but as these squirrels like other Oriental squirrels have different seasonal pelages I don't think that the colouration of the fur is of any great value in the separation of geographical races.

As compared with specimens of *Menetes berdmorei consularis* THOS. the main point of difference lies in the colouration of the lower surface of the body. In the new form the underparts of the body are almost pure white on the anterior parts, then followed by an area where only a narrow part in the middle of the abdomen is white. The white colour is bordered on each side by a blackish line which reaches as far as to the lowest of the lateral stripes. The hindmost part of the abdomen is white slightly washed with ochraceous. There is no median dorsal black stripe. The light stripes on the sides of the body are very conspicuous and of a yellowish buff colour. Between these two light stripes the pelage is of exactly the same colour as on the upper parts of the body and not darker as in *Menetes berdmorei consularis* THOS.

Type: Adult male collected at Sakerat in Eastern Siam on the 9th of January 1912. Hindfoot (measured in skin) = 36 mm.

*Skull measurements.*¹

Greatest length	46,1 mm.	
Basicranial length	41,7	
Length from condylus to gnathion	44,1	
Zygomatic width	25,4	(24,4 mm.)
Greatest width of brain case	20,3	(19,8)
Length of nasals mesially	13,7	(13,1)
Least interorbital width	11,8	(11,9)
Least postorbital width	14,0	(14,4)
Diastema	12,0	(11,1)
Palate to hensenion	22,7	(21,7)
Distance between lacrymal notch to tip of nasals . .	19,0	» (18,5)
Maxillary toothrow	9,2	(9,1 »)
Length of frontals mesially	20,1	(20,0)
Length of bullae	9,2	(9,1)
Breadth of bullae to meatus auditiva	5,0	(4,9 »)

South-eastern Siam is inhabited by still another form *Menetes berdmorei mouhoti*, GRAY, the hind-foot of which measures 41—45 mm.

Tamiops maclellandi kongensis. BONH.

♂ Pak Koh $18/3$ 1914. — Hindfoot (measured in skin) = 30 mm. — ♀ Koon Tan, $7/9$ 1914. — Nose to vent = 115 mm.; tail = 119 mm. — ♂ Koon Tan $2/5$ 1914. — Nose to vent = 140 mm.; tail = 139 mm.; hindfoot (measured in skin) = 31 mm. — ♀ Koon Tan $13/9$ 1914. — Nose to vent = 110 mm.; tail = 129 mm.; hindfoot (measured in skin) = 31 mm. — ♂ Chum Poo $2/5$ 1914. — Hindfoot (measured in skin) = 30 mm. — ♀ Chum Poo $3/5$ 1914. — Hindfoot (measured in skin) = 30 mm.

A fine series of this small squirrel was obtained at different localities and seasons during my travels in Northern Siam 1914.

¹ Measurements in brackets are those of an adult female obtained at the same locality as the type.

Two specimens shot in February have the outer light stripes very pale coloured being almost creamy white. The two dorsal light stripes are very dark. The specimens collected in May are very bright coloured and the outer stripes are quite broad and well-defined being buff, though not quite as dark as the two dorsal stripes which are almost rufous buff. The three dark stripes are nearly black some of the hairs having rufous tips only. These stripes are much more prominent in these specimens than in other specimens shot at the earlier months of the year, in which all the hairs have rufous tips. Specimens collected in September also differ in certain particulars. The outer light stripes are then of about the same colour as in the specimens obtained in May but on the lower back they are almost white, which colour merges into the creamy buff colour on the middle of the back. The dark stripes are also duller and the rufous tips to the hairs are very distinct and washed with olive. The general colouration is more greyish and the underparts paler.

Skull measurements	♂	♂	♂	♀	♀	♂
Greatest length	34,5 mm.	31,0 mm.	34,5 mm.	32,1	—	34,1 mm.
Condylus to gnathion	31,2	27,9	30,6	28,2	29,2 mm.	31,0
Basicranial length	28,8	26,0	—	26,1	28,0	—
Zygomatic width	20,5	18,2	21,1	19,1	—	19,6
Width of brain case at the root of zygomata	17,0	15,0	16,6	15,7	—	16,2
Width between tips of postorbital processus	19,0	—	18,4	16,4	—	18,5
Least interorbital width	12,5	11,3	12,5	11,5	—	12,7
Least postorbital width	13,8	12,4	14,1	13,2	—	14,1
Breadth between meatus auditiva . . .	15,6	14,0	15,2	14,3	—	14,9
Length of nasals mesially	9,5	7,2	9,2	8,3	8,6	9,5
Breadth of nasals anteriorly	4,5	4,3	4,5	4,0	4,5	4,5
Breadth of nasals posteriorly	2,6	2,4	2,5	2,7	2,6	2,4
Diastema	7,0	5,9	6,7	6,2	6,6	7,0
Length of palate to hensenion	12,7	11,7	12,7	12,3	12,3	13,8
Length of upper molar series	6,0	5,7	6,3	5,9	5,5	5,5

***Rattus pellax.* MILLER.**

Proc. Biol. Soc. Wash. Vol. 13. 1900 p. 147.

♀ Hat Sanuk, Siamese Malya, ²¹/₂ 1915. — Nose to vent = 170 mm.; tail = 187 mm.; hindfoot = 37 mm.

♀ Hat Sanuk ³⁰/₁ 1915. — Nose to vent = 156 mm.; tail = 157 mm.; hindfoot = 37 mm.; — ♀ Hat Sanuk ³⁰/₁ 1915. — Nose to vent = 130 mm.; tail = 150 mm.; hindfoot = 36 mm.; — ♀ Hat Sanuk ²¹/₂ 1915. — Nose to vent = 160 mm.; tail = 170 mm.; hindfoot = 36 mm.

This species occurred together with *Rattus surifer* MILLER. in the evergreen jungles on the boundary to Tenasserim, though apparently not as common as that species. In all my specimens the nasals extend conspicuously behind the premaxillar branches as

stated by MILLER in the original description, but there is no white spot between the eyes except in one of the specimens, obtained on the 21st of January and even in this specimen it is ill-defined.

Skull measurements	♀	♀	♀
Greatest length	40,2 mm.	—	—
Zygomatic width	17,0	—	—
Length of incisive foramina	5,6	5,6 mm.	5,7 mm.
Length of palate from henselion	16,5	15,2	15,2 »
Breadth of palate between first molars	3,6 »	3,5 »	3,6 »
Length of diastema	10,0	9,6	9,6
Length of nasals mesially	15,8	14,4	15,5 »
Breadth of nasals anteriorly	4,0	4,0	4,0
Breadth of nasals posteriorly	1,6 »	1,4	1,6
Least interorbital breadth	6,5	6,0	6,6
Width of brain case	15,7	—	—
Length of maxillary toothrow	6,0	6,2 »	6,1

Rattus surifer. MILLER.

Proc. Biol. Soc. Washington. Vol. 13. 1900 p. 148.

♀ Hue Sai, Siamese Malaya, ¹⁵/₁ 1915. — Nose to vent = 175 mm.; tail = 165 mm.; hindfoot = 38 mm. — ♀ Hui Sai ¹⁷/₁ 1915. — Nose to vent = 190 mm.; tail = 178 mm.; hindfoot = 38 mm. — ♂ Hue Sai ¹⁶/₁ 1915. — Nose to vent = 192 mm.; tail = 195 mm.; hindfoot = 37 mm. — ♀ Hue Sai ¹⁸/₁ 1915. — Nose to vent = 185 mm.; tail = 150 mm.; hindfoot = 38 mm. — ♀ Hue Sai ¹⁷/₁ 1915. — Nose to vent = 165 mm.; tail = 177 mm.; hindfoot = 38 mm. — ♂ Hue Sai ¹⁶/₁ 1915. — Nose to vent = 225 mm.; tail = 190 mm.; hindfoot = 38 mm. — ♀ Hue Sai ¹⁶/₁ 1915. — Nose to vent = 198 mm.; hindfoot = 37 mm. — ♀ Hue Sai ¹⁷/₁ 1915. — Nose to vent = 165 mm.; tail = 173 mm.; hindfoot = 37 mm. — ♂ Hue Sai ¹⁶/₁ 1915. — Nose to vent = 220 mm.; tail = 225 mm.; hindfoot = 37 mm. — ♂ Hue Sai ¹⁵/₁ 1915. — Nose to vent = 190 mm.; tail = 188 mm.; hindfoot = 36 mm. — ♂ Hat Sanuk, Siamese Malaya, ²⁰/₂ 1915. — Nose to vent = 190 mm.; tail = 195 mm.; hindfoot = 38 mm. — ♀ Hat Sanuk ²⁶/₁ 1915. — Nose to vent = 178 mm.; tail = 160 mm.; hindfoot = 37 mm. — ♀ Hat Sanuk ²⁶/₁ 1915 (imm.) — Nose to vent = 135 mm.; tail = 163 mm.; hindfoot = 35 mm. — ♀ Hat Sanuk ³¹/₁ 1915 (imm.) — Nose to vent = 148 mm.; tail = 155 mm.; hindfoot = 36 mm. — ♂ Koon Tan, Northern Siam, ⁹/₉ 1914. — Nose to vent = 175 mm.; tail = 150 mm.; hindfoot = 36 mm.

This fine Rat was very common in the dense jungles on the boundary between Siam and Tenasserim and a large series was obtained. It is easily trapped and seems to live near rivers and creeks. The whole series is very uniform as to the colouration of the fur.

The specimen obtained at Koon Tan in Northern Siam was shot in a dense evergreen forest among boulders of rocks. It is exactly similar to the other specimens from the Siamese Malaya, both as to size and colour.

It adds a considerable distance to the distributional area of this species in a northern direction.

Skull measurements	♂	♂	♂	♀	♀	♀
Greatest length	46,1 mm.	46,0 mm.	—	41,1 mm.	45,5 mm.	41,5 mm.
Condylobasal length	41,3 »	42,2	—	37,3 »	41,5	36,8 »
Basiscranial length	—	40,0	—	34,4 »	39,0	34,3 »
Zygomatic width	20,5	19,5	19,2 mm.	19,0	19,7	
Width of brain case	17,1	16,8	16,1	16,2 »	15,9	15,8
Palatal length to henselion	18,1	18,7	16,6	17,1 »	17,8	16,3
Diastema	11,6	11,5	11,3	10,6	11,1	10,2
Length of nasals mesially	17,7	17,5	16,5	15,0	16,5	15,9
Breadth of nasals anteriorly	4,3	4,3	3,7	4,1 »	4,2	3,7
Breadth of nasals posteriorly	2,0	2,0 »	2,0 »	2,0 »	1,5	2,0
Least interorbital breadth	6,4	6,9	6,2 »	6,8 »	7,1	5,5
Length of foramina incisiva	5,8	6,2	5,5	6,2 »	6,3	5,8
Breadth of palate between m ¹	3,6	3,8 »	3,8	3,2	3,7	3,8 »
Maxillary toothrow	6,2	6,5	6,0	6,2	6,5	6,2

Rattus sp.

♀ Hue Sai, Siamese Malaya, ¹⁷/₁ 1915. — Nose to vent = 108 mm.; tail = 105 mm.

This specimen is too young to be properly identified but it certainly belongs to the *Rattus surifer*-Group. It does not, however, agree well with the two immature specimens of this rat which were obtained at Hat Sanuk a few miles north of Hue Sai.

The dimensions of the skull are as follows:

Greatest length = 32,6; condylus to gnathion = 28,0; length of palate from henselion = 12,5; breadth of palate between m¹ = 2,0; diastema = 7,2; least interorbital breadth = 5,7; length of foramina incisiva = 3,6; length of nasals mesially = 10,1; breadth of nasals anteriorly = 3,6; breadth of nasals posteriorly = 1,2; maxillary toothrow = 5,0 mm.

Rattus rattus rufescens. GRAY.

♀ Koon Tan, Northern Siam, ¹⁷/₅ 1914. — Nose to vent = 137 mm.; tail = 155 mm.; hindfoot = 31 mm. — ♂ Koon Tan ¹⁷/₅ 1914. — Nose to vent = 175 mm.; tail = 194 mm.; hindfoot = 32 mm. — ♀ Doi Par Sakeng, Northwestern Siam, ³⁰/₆ 1914. — Nose to vent = 160 mm.; tail = 190 mm.; hindfoot = 32 mm. — ♀ Doi Par Sakeng ²³/₇ 1914. — Nose to vent = 177 mm.; tail = 200 mm.; hindfoot = 32 mm.

The specimens obtained, which all were trapped in houses, are very similar as to the general colouration of the fur.

Skull measurements	♂	♀
Greatest length	— mm.	41,0 mm.
Zygomatic width	17,6	
Width of brain case	14,5	15,5
Least interorbital breadth	5,7	5,6
Length of nasals mesially	13,8	14,0
Breadth of nasals anteriorly	4,0	3,8
Breadth of nasals posteriorly	2,1	1,7
Diastema	10,0	10,6
Length of palate from henselion	17,3	19,0
Length of foramina incisiva	7,5	7,2
Length of bullæ	—	8,1
Maxillary tooththrow	6,5	7,0

Rattus rattus jalorensis. BONH.

Fasciculi Malayensis Part I. 1903 p. 28.

♂ Koon Tan, Northern Siam, ¹⁷/₅ 1914. — Nose to vent = 207 mm.; tail = 225 mm.; hindfoot = 33 mm. — ♂ Koon Tan ⁹/₉ 1914. — Nose to vent = 160 mm.; tail = 170 mm.; hindfoot = 33 mm. — ♀ Doi Par Sakeng, Northwestern Siam, ¹⁹/₆ 1914. — Nose to vent = 170 mm.; tail = 190 mm.; hindfoot = 33 mm.

All these three specimens are similar to a specimen of *Rattus rattus jalorensis* BONH. from Teluk Anson in the Malay Peninsula with the exception that the tail for its whole length is pale brown instead of blackish brown. The specimen obtained at Koon Tan on the 17th of May 1914 has the tail pale brown with the exception of the tip which is blackish brown. Apparently a house rat and never trapped far from human habitations

Skull measurements	♂	♂	♀
Greatest length	— mm.	38,1 mm.	— mm.
Condylus to gnathion	—	35,3	—
Basicranial length	—	31,6	—
Zygomatic width	20,1	17,5	18,6
Width of brain case	15,0	16,0	16,2
Palate to henselion	19,0	17,2	—
Breadth of palate between m ¹	4,0	2,9	3,3
Diastema	10,0	9,0	—
Length of foramina incisiva	6,9	6,2	—
Length of nasals mesially	13,5	13,2	—
Breadth of nasals anteriorly	4,9	3,6	—
Breadth of nasals posteriorly	1,5	1,6	1,8
Least interorbital breadth	5,7	5,4	5,2
Maxillary tooththrow	7,5	6,8	7,0

***Rattus rattus griseiventer.* BONH.**

Fasciculi Malayensis. Part I. 1903 p. 30.

♀ Doi Par Sakeng. Northwestern Siam, ¹⁷/₇ 1914. — Nose to vent = 160 mm.; tail = 204 mm.; hindfoot = 33 mm.

A house Rat though apparently not as common as the other members of the *rattus*-group found in Siam. The tail is brown instead of black as in some specimens of true *Rattus rattus griseiventer* from the Malay Peninsula, which I have used for comparison.

The general colouration is also somewhat paler.

Skull measurements:

Greatest length = 40,0; zygomatic width = 18,8; width of brain case = 15,6; length of palate from henselion = 18,5; breadth of palate between m¹ = 2,5; diastema = 9,8; length of foramina incisiva = 6,5; length of nasals mesially = 14,6; breadth of nasals anteriorly = 3,5; breadth of nasals posteriorly = 1,2; least interorbital breadth = 6,0; maxillary toothrow = 7,1 mm.

***Rattus concolor.* BLYTH.**

♂ Koh Lak, Siamese Malaya, ²²/₁₁ 1914. — Nose to vent = 130 mm.; tail = 113 mm.; hindfoot = 25 mm. — ♂ Koh Lak ²³/₁₁ 1914. — Nose to vent = 112 mm.; hindfoot = 24 mm. — ♀ Koh Lak ²³/₁₁ 1914. — Nose to vent = 105 mm.; tail = 143 mm.; hindfoot = 24 mm. — ♀ Koh Lak ¹/₁₂ 1914. — Nose to vent = 110 mm.; tail = 140 mm.; hindfoot = 24 mm. — ♂ Koh Lak ¹/₁₂ 1914. — Nose to vent = 120 mm.; tail = 118 mm.; hindfoot = 25 mm. — ♀ Koh Lak ¹/₁₂ 1914. — Nose to vent = 115 mm.; tail = 140 mm.; hindfoot = 25 mm.

All these specimens are absolutely similar to true *Rattus concolor* BLYTH from different parts of the Malay Peninsula with which I have compared them.

Very plentiful in the houses at Koh Lak.

Skull measurements	♂	♂	♀	♀
Greatest length	28,5 mm	29,8 mm.	30,3 mm.	mm.
Condylus to gnathion	26,1	27,4	27,9	—
Basiscranial length	—	—	26,7	—
Zygomatic breadth	12,8	13,0	—	12,5
Width of brain case	11,9	12,6	12,5	12,2
Least interorbital breadth	4,2	4,3	4,3	4,4
Length of nasals mesially	9,5	10,3	10,2	10,5
Breadth of nasals anteriorly	2,7	3,0	3,0	2,7
Breadth of nasals posteriorly	1,5	1,5	1,5	1,3
Diastema	6,5	7,5	7,8	7,0
Palatal length from henselion	12,2	13,1	14,0	12,6
Length of foramina incisiva	5,3	5,3	5,1	4,8
Maxillary toothrow	4,4	4,7	4,5	4,5

Rattus sakeratensis sp. n.

Plate VI. Fig. 6 & 9.

♀ Sakerat, Eastern Siam, January 1912. — Head and body = 100 mm.; tail = 103 mm.; hindfoot = 26 mm.

During my former Expedition to Siam 1911—1912 I obtained a specimen of a small rat which I referred to *Mus concolor* BLYTH in my paper about the Mammals of Siam (Arkiv för zoologi, Band 8. N:o 23. 1914 p. 18). Since more material of typical *Rattus concolor* has now been available I have found it necessary to describe the Sakerat-specimen as new. It is, however, related to *Rattus concolor* though it differs in several particulars.

Colour: General colouration above rufous umber intermixed with some black hairs which are longer than the other hairs. Spines few in number and very feeble; sides of the body creamy white; rest of the under surface white with dusky bases to the hairs. The whole lower surface is faintly washed with cream colour. Feet light brown, clothed with hairs; at the root of the claws a tuft of white hairs; hands pale brown washed with cream colour and with a short tuft of white hairs at the root of the claws; tail blackish brown throughout its whole length and clothed with short hairs; whiskers black throughout and rather long; muzzle dusky brown.

Skull: The cranial differences between the new form and that one of *Rattus concolor* are striking. The foramina incisiva are very short, measuring 4,1 mm. against 5,5 mm. in typical *concolor* from the Malay Peninsula. The foramina are also much broader measuring 1,8 mm. at about the middle against 1,3 mm. in *concolor*. The bullæ are very small and much flattened and the distance between the bullæ greater. The breadth of the palate is less measuring 1,8 mm. between the first molars against 2,1 mm. in *concolor*. The basioccipitale is also much broader anteriorly. The molars both in the upper and in the lower jaw are broader. The nasals are greatly tapering off posteriorly. Frontal ridges well developed. The supraoccipitale is of another form: 5,0 mm. in length and 8,6 mm. in breadth while in *concolor* it is only 3,5 mm. in length and 8,5 mm. in breadth. The bony palate does not extend as far backwards as in *Rattus concolor* and the foramen magnum is somewhat wider. Brain case rather large, making the whole skull more robust than in *concolor*. Compared with the skull of *Rattus ephippium* JENT. from Borneo the following differences are to be noted. Bullæ much smaller and more flattened; foramina incisiva longer and broader, measuring 4,1 mm. in length and 1,8 mm. in combined breadth against 3,0 mm. and 1,0 mm. respectively in *R. ephippium*. Palatal length from hensenion = 11,2 mm. against 12,6 mm. in *R. ephippium*.

Remarks: From *Rattus ephippium* JENT. which it approaches in size, it may at a glance be distinguished by the different colouration of the fur which in that species is bright tawny. The underparts are creamy white and much paler than the abdomen in *R. ephippium*. The feet are light brown with long white hairs covering the claws, while in *R. ephippium* the feet are almost concolourous with the abdomen. The tail is blackish brown for its whole length while in *ephippium* it is dark brown. One of the most noticeable differences is, however, the length of the hindfoot which in the new form measures 26,0 mm. against 22,5 mm. in *Rattus ephippium* and 23,5 mm. in *Rattus concolor* BLYTH.

Type: Adult female collected at Sakerat, Eastern Siam, January 1912.

Skull measurements (for comparison I also record the skull measurements of a specimen of *Rattus ehippium* JENT. from the Baram River, Borneo, and of a specimen of *Rattus concolor* BLYTH from Teluk Anson, the Malay Peninsula):

Skull measurements	<i>R. saker-</i> <i>atensis</i>	<i>R. ehip-</i> <i>pium</i>	<i>R. concolor.</i>
	♀		♀
Greatest length	31,0 mm.	29,0 mm.	30,4 mm.
Condylus to gnathion	28,0	26,7	27,7
Basicranial length	25,4	24,7	25,5
Zygomatic width	13,8	12,8	13,5
Width of brain case	14,0	12,3	12,5
Least interorbital width	4,9	4,1	4,7
Breadth between meatus auditiva	12,0	12,0	—
Length of nasals mesially	10,7	10,3	10,5
Breadth of nasals anteriorly	3,3	2,5	3,0
Breadth of nasals posteriorly	0,8	—	1,4
Diastema	7,0	7,2	7,1
Palatal length from henselion	11,6	12,6	12,9
Length of foramina incisiva	4,1	3,2	5,3
Combined breadth of foramina incisiva	1,8	1,5	1,6
Breadth between bullæ (anteriorly)	3,6	1,6	2,1
Breadth of palate between m ¹	1,8	2,6	2,1
Maxillary toothrow	5,0	4,1	4,8

Cannomys minor lönnbergi subsp. n.

In the Annals and Magazine of Natural History, vol. 16 No. 91. 1915 p. 56—61 and vol. 16 No. 94. 1915 p. 313—317 OLDFIELD THOMAS has given a review of some of the Asiatic Bamboo-Rats. He recognises three different groups all of which have before been united under the generic name of *Rhizomys*.

The Siamese form formerly known as *Rhizomys minor* GRAY. is now called *Cannomys minor*.

The Natural History Museum in Stockholm is in possession of two specimens of a Bamboo-Rat collected by myself in Eastern Siam 1912. When writing my account of the Mammals obtained by the Expedition (Arkiv för Zoologi, Band 8. N:o 23. 1914) I referred these two specimens to *Rhizomys minor* GRAY. with the remark that »they are rather smaller than typical *Rhizomys minor* GRAY. The fur is also of a somewhat differing colour, being bluish grey, instead of ashy brown».

Concerning the characteristics of the genus *Cannomys* OLDFIELD THOMAS remarks that »on the analogy of other burrowing rodents, one might have expected to find a considerable number of plumbeous individuals in all districts, but curiously enough, these only occur in a single race — that of the Shan States plateau —».

This race has been recently described by THOMAS under the name of *Cannomys castaneus plumbescens*.

Mr. THOMAS also gives some measurements of *Cannomys minor* (tom. cit. p. 316). All these measurements are somewhat different from those of the specimens in my collection and, as the colouration in these specimens also is different I think that the Bamboo-Rats from the Korat plateau in Eastern Siam ought to be separated subspecifically under the name of *Cannomys minor lönnbergi* subsp. n.

Diagnosis: General colouration slaty grey with a longitudinal white band on the crown. From the chin down the throat a narrow white line. Tail dark brown, except the utmost tip which is black. The whole tail is clothed with a few scattered hairs. Hands and feet dark brown. Hindfoot (measured in skin) = 27 mm.

Type: adult female, collected at Sakerat in Eastern Siam, February 1912.

<i>Skull:</i> Condylus to gnathion	41,1	mm.
Zygomatic breadth	29,9	(31,1) ¹
Length of nasals mesially	14,5	(15,0)
Breadth of nasals anteriorly	5,0	(5,1)
Breadth of nasals posteriorly	2,1	(2,1)
Width of brain case above root of zygomata	18,1	» (18,1)
Least interorbital width	9,5	» (8,8)
Upper molar series (alveolar)	9,7	» (10,2)
Lower molar series (alveolar)	10,2	» (10,0)
Breadth of m ¹ on front face	3,9	(3,3)

This species is named in honour of Professor Doctor EINAR LÖNNBERG, the Director of the Royal Natural History Museum in Stockholm.

Nyctocleptes cinereus. McCLELL.

A member of the *Nyctoplectes* Group as defined by THOMAS (Ann. & Mag. Nat. Hist. 8 ser. Vol. 16. 1915 p. 57).

The Bamboo-Rats belonging to this Group are characterized by their large size and by having the posterior nares nearly as wide as high.

The large Burmese Bamboo-Rats are generally distributed in the bamboo-jungles of Northern Siam. They dig deep burrows in the bamboo-forests, the roots of which generally constitute their food. Their flesh is highly appreciated by some of the hill tribes such as the Karens and the Kamuks. When cornered these Bamboo-Rats are very savage and bite fiercely at anything put near them. The cheeks in this species are red. *Nyctocleptes erythrogeus* as described by ANDERSON (P. A. S. B. 1877 p. 150) from the Salween Hill tracts is apparently the same species as *N. cinereus* McCLELL. and must only be included among the synonyms of that species.

¹ Measurements in parenthesis are those of another female obtained at the same locality as the type.

Lepus siamensis. BONH.

♂ Koh Lak, Siamese Malaya, ¹⁶/₁₂ 1914. — Nose to vent = 444 mm.; tail = 75 mm. — ♀ Koh Lak ¹⁶/₁₂ 1914. — Nose to vent = 445 mm.; tail = 92 mm. — ♀ Koh Lak ²⁵/₁₁ 1914. — Nose to vent = 460 mm.; tail = 90 mm.; ear = 90 mm.

At Koh Lak in the Siamese Malaya hares were rather common in the low-lying country near the coast. Only three specimens were preserved, but several others were shot for the kitchen. The natives highly appreciate the flesh of hares and generally used to snare them. Another method, also frequently used by the Siamese and the Laotians, is to shoot hares during night-time with the aid of a lantern. The female specimen shot at Koh Lak on the 16th of December contained an almost fullgrown young.

All my specimens are true *siamensis* as described by BONHOTE on specimens from Chiang Mai in Northern Siam. At this locality, however, hares seemed to be rather rare and no specimens were obtained at that locality. In the collections of Mr. EISENHOFER there were a few specimens shot at the surroundings of Chum Poo, a short distance south-east of Chiang Mai, the type locality of this species.

The general colouration of the fur in my specimens perfectly well agrees with the description of the type as given by BONHOTE.

The skulls, however, show some slight differences as seen by the measurements given below.

In his original description BONHOTE considers the Siamese hares as being most nearly related to *Lepus hainanus* SWINH. (Proc. Zool. Soc. 1870 p. 233). I, however, think it is most nearly related to *Lepus peguensis* BLYTH, which species it resembles very much both as to size and colour. In *Lepus peguensis* the fur on the back and tail is black instead of very dark brown as in *L. siamensis*. The black terminal patch on the posterior outer surface of the ear, so conspicuous in *peguensis*, is slightly indicated in all my specimens and not totally absent as stated by BONHOTE. One of the main points of difference is, however, that in *Lepus peguensis* the feet are *white* while in *Lepus siamensis* they are *fulvous*.

The occurrence of a hare as far south as to about Lat N. 12° adds a considerable distance to the distribution of this species in the Malay Peninsula.

Skull measurements	<i>Lepus siamensis</i>				<i>L. peguensis</i>	<i>L. hainanus</i>
	♂	♀	♀	♀ (type)		
Greatest length	86,8 mm.	84,3 mm.	84,9 mm.	86,0 mm.	85,0 mm.	72,0 mm.
Breadth between m ¹	12,3 »	12,0 »	12,6 »	13,0 »	13,0 »	11,0 »
Interorbital breadth	20,0 »	17,1 »	16,2 »	—	—	—
Length from 1st premolar to outer edge of incisors	27,2	26,0 »	25,7 »	26,0 »	25,0 »	21,0 »
Breadth of brain case	27,1 »	26,1 »	25,9 »	30,0 »	28,0 »	26,0 »
Height, crown to base of lower jaw . .	51,0	—	—	54,0 »	53,0 »	—
Greatest breadth of basioccipitale . . .	10,5 »	8,0	—	10,0 »	9,0 »	10,0 »
Posterior breadth of nasals	17,5	17,8	16,1	21,0 »	18,0 »	16,0 »
Diastema	22,0	21,8 »	21,6 »	—	—	—
Length from condylus to gnathion . . .	78,1	73,6 »	—	—	—	—
Zygomatic width	37,3 »	39,2 »	—	—	—	—
Postorbital breadth	14,6	12,5 »	12,3 »	—	—	—
Length of nasals mesially	31,5	31,0 »	31,0 »	—	—	—

Acanthion klossi. THOS.

The Porcupine collected at Meh Lem in Northern Siam on the 10th of March 1912 and recorded by me under the name of *Hystrix bengalensis* BLYTH. (Arkiv för Zoologi, Band 8. No. 23. 1914 p. 20) ought to be referred to the species which has recently been separated and described by THOMAS under the name of *Acanthion klossi* (Ann. Mag. Nat. Hist. ser. 8. vol. 17. 1916 p. 139). This species, the type of which came from Tenasserim, may be separated from its nearest ally *Acanthion brachyurus* LINN. by its shorter frontals and its longer nasals. *Acanthion bengalensis* BLYTH seems to be a somewhat doubtful species of which no modern specimens are to be had. In *Acanthion klossi* the quills are stated by THOMAS to be almost white with a black ring about the middle. This statement agrees well with the specimen in my Siamese collection, in which the nasals also are more than twice the length of the frontals (measured mesially).

During my last journey in Siam no Porcupines were obtained, but I several times both in Northern Siam and in the Siamese Malaya found loose quills. As far as I can remember they were all of a whitish colour with a black ring.

Therefore it seems as if *Acanthion klossi* was distributed at least as far down in the Malay Peninsula as to about Lat. N. 12°. In the southern parts of the Malay Peninsula another species occurs the true *Acanthion brachyurus* of LINNÆUS.

Elephas maximus. LINN.

Wild elephants seemed to be fairly common in the jungles on the boundary between Siam and Tenasserim to count from the numbers of tracks, both fresh and old, which were observed at these localities.

Even in the northern parts of the country as for instance in the wild and uninhabited country at the neighbourhood of Doi Vieng Par numbers of footprints were observed now and then during my excursions. No specimens were, however, encountered as I did not waste the time following up these huge animals which are strictly forbidden to be shot without the special permission of the King.

Rhinoceros sumatrensis. CUV.

According to the natives the smaller one-horned Rhinoceros is the most common form of Rhinoceros occurring in Northern Siam.

The two-horned Rhinoceros is, however, also stated to inhabit the same districts. The neighbourhood of Chieng Hai is considered as one of the best hunting stations for these large Pachyderms, and during my stay there I also several times observed their tracks in the vicinity. Unfortunately I visited Chieng Hai in the middle of the rainy season and the surrounding country was all flooded. Chieng Hai is situated on a large plain chiefly covered by high grass and reeds which makes travelling very difficult. However, I once tried to get a Rhinoceros, the fresh tracks of which we found. We followed

its tracks for a considerable distance in the high grass through which the animal had made veritable tunnels but as the water was very deep we were not able to stalk as silent as necessary and suddenly I heard the animal rushing away uttering a grunting note.

To hunt Rhinoceros on elephants-back is considered by the natives as impossible because the Rhino will at once attack the elephant as soon as it gets wind of it. Elephants are also said to be very afraid of the Rhinoceroses and would run away as soon as the Rhino is going to attack.

Rhinoceros sondaicus. Cuv.

This is apparently a more southern form being far more common in the southern districts than *Rhinoceros sumatrensis* Cuv.

At two different occasions during my stay among the mountains in the Siamese Malaya on about Lat. N. 12° I observed the tracks of a Rhinoceros probably belonging to this species. They are, however, very shy and retiring in their habits, and are therefore seldom met with or shot especially by European sportsmen.

Mr. C. G. SHORTRIDGE, however, succeeded in shooting a female specimen near Bankachon in Southern Tenasserim. Bankachon is situated some distance south of the places I visited, though on the other side of the Peninsula, and surrounded by dense evergreen jungles.

Tapirus indicus. Cuv.

The Tapir or »Samset», as it is called in Siamese, occurs here and there on suitable localities in the Siamese Malaya at last as far north as to about Lat. N. 13°.

It is, however, nowhere common and keeps to the thickest and most impenetrable jungles.

According to the native hunters it is considered as one of the most difficult animals to track. Tapirs most often inhabit lowlying country but they do not avoid the lower hills as I have verified myself. During my stay among the mountains on the boundary between Siam and Tenasserim on about Lat. N. 12° I several times struck the fresh tracks of tapirs in the densest parts of the evergreen forests which clothed the neighbourhood of Hat Sanuk and Hue Sai, both small creeks running down to the Gulf of Siam. In these forests small saltlicks abound and the surroundings of these »nongs», as they are called in Siamese, were favourable resorts for the tapirs, which frequently came down to drink the water during the night-time. Though I several times waited over these saltlicks during moonlight nights I never succeeded in getting a tapir, nor did I hear any.

Once I found a quite fresh resting-place of a tapir and when I told my natives hunters that I wanted to follow the track they only shook their heads telling me that it was impossible to get near the animal.

The curious appearance and colouration of the tapir is declared by the natives in the following way.

When the Creator had made all the other animals He found that He had some material still left. He put all these parts together and mixed them and in such a way the Samset was made.

Sus sp.

In the Northern parts of the country pigs were nowhere very common though generally distributed. Among the Koon Tan mountains I several times observed the fresh tracks of wild pigs in the narrow valleys among the mountains. These valleys are generally clothed with a very dense vegetation of evergreen trees, through which the burning rays of the sun seldom penetrates. Such valleys were favourite resorts for the pigs. I myself never saw one but my Dyak collector once came across 6 pigs though he unfortunately missed them with the shot gun.

In the Siamese Malaya wild pigs were far more abundant though very shy and difficult to stalk among the thick vegetation. I once had a chance to get a shot at a large boar coming down to a waterplace but I only wounded it and it could not be found though I followed its track for some distance.

Which species inhabits Siam is still open to question as no specimens have reached European Museums from that part of the world, but it is probably a member of the *Sus cristatus*-Group.

The typical *Sus cristatus* is said to inhabit the Eastern Himalayas, Burma, Tenasserim and the Northern parts of the Malay Peninsula. From Trang in Peninsular Siam MILLER has described a form which he calls *Sus cristatus jubatus* (vide: Proc. U. S. Nat. Mus. vol. 30. 1906 p. 745).

Tragulus kanchil affinis. GRAY.

Plate V. Fig. 1 & 4.

♂ Hat Sanuk, near the boundary between Siam and Tenasserim, $2\frac{1}{2}$ 1915. — Nose to vent = 495 mm.; tail = 70 mm.; hindfoot with hoofs = 122 mm. — ♂ Hat Sanuk $2\frac{1}{2}$ 1915. — Nose to vent = 440 mm.; tail = 61 mm.; hindfoot with hoofs = 118 mm.

The specimens obtained are all very uniform as to their general colouration and they agree well with the description of *Tragulus kanchil affinis* as given by GRAY in the Proceedings of the Zoological Society, London 1861 p. 138. GRAY's species was founded on specimens from Cambodia, which therefore must be considered as the type locality of that race.

In the Proceedings of the Biological Society of Washington vol. XV. 1902 p. 173 Mr. GERRIT MILLER has described another member of the *kanchil*-Group under the name of *Tragulus rarus*, based on specimens collected by Dr. W. L. ABBOTT in Trang, Peninsular Siam.

In the Catalogue of the Ungulate Mammals in the British Museum Natural History vol. IV. 1915 p. 286 *Tragulus rarus* is included among the synonymms of *Tr. kanchil affinis* and THOMAS has suggested that the latter may perhaps be a southern type in which case *Tragulus rarus* will have to stand for the northern form.

Among the mammals recently obtained by my Dyak collector at the neighbourhood of Teluk Anson, Perak, Malay Peninsula there is a fine male specimen, which has been identified as *Tragulus rarus* by Mr. C. BODEN KLOSS of the Federated Malay States Museums.

When comparing the Siamese specimens with that one from Perak there are some differences to be noticed. The general colouration of my specimen of *Tragulus rarus* MILL. is much darker.

The skulls also differ and I therefore believe that the southern form must be separated under the name of *Tragulus rarus*. This stands in opposition to what has been stated by THOMAS who considered *Tragulus affinis* as a more southern form than *Tragulus rarus*.

In this last-mentioned form the nasals are quite straight on their posterior border, while in the specimens from the northern parts of the Malay Peninsula they are rounded as seen by the photograph (plate V fig.1.). The interorbital constriction is also narrower the northern specimens and the bullæ are higher and broader than in my specimen of *Tragulus rarus*. The occipital region is higher in the northern specimens and the palatal width is less measuring 14,1 mm. against 16,6 mm. in *Tragulus rarus*. (The specimens compared are of about the same age though the Siamese specimen is perhaps slightly older, having its teeth more worn.)

In his account of the »Mammals collected in Southeastern Siam» BODEN KLOSS comes to the conclusion that *Tragulus kanchil affinis* GRAY has to be considered as a more eastern form than *Tragulus rarus*, MILLER. The former species is stated to inhabit the Indo-Chinese countries while the latter is a Malayan form inhabiting the Malay Peninsula. In this I also agree with BODEN KLOSS but only to a certain degree. As seen by the material at my disposal the Indo-Chinese form — thus *Tragulus kanchil affinis*, GRAY — also inhabits the most northern parts of the Malay Peninsula. The place where this form meets the more southern form *Tragulus rarus*, MILLER is still unknown, but it may possibly be somewhere near the Isthmus of Kra. In the Siamese Province of Bandon, ROBINSON and KLOSS met with typical *T. rarus*.

Skull measurements	<i>T. k. affinis</i>		<i>T. rarus</i>
	♂	♂	♂
Greatest length	98,1 mm.	90,5 mm.	95,0 mm.
Basal length	85,1	77,5	80,8
Palatal length to posterior margin of <i>foramina incisiva</i>	42,3	37,2	41,2
Length of nasals mesially	26,5	23,5	27,6
Breadth of nasals anteriorly	5,9	6,1	6,8
Breadth of nasals posteriorly	15,0	13,5	14,1
Zygomatic width	42,0	39,5	41,7
Maxillary toothrow	31,6	32,6	32,0
Length of bullæ	20,7		19,3
Breadth of bullæ	8,3	—	9,0

Muntiacus muntjac vaginalis. BODD.

Plate V. Fig. 6. Plate I. Fig. 2.

♀ Koon Tan, Northern Siam, $^{23}/_5$ 1914. — Nose to vent = 950 mm.; ear = 100 mm. — ♀ Bang Hue Pong, Northern Siam, $^{26}/_5$ 1914. — Nose to vent = 900 mm.; tail = 180 mm.; ear = 98 mm. — ♀ Koon Tan $^{24}/_5$ 1914.

This race of the Muntjac seems to be confined to the hill forests of Northern Siam, but there it was rather common. It keeps to every kind of jungles, and females seems to be more numerous than males.

The skulls differ in some ways from those of the other race found in Siam viz. *Muntiacus muntjac curvostylis* GRAY. The lachrymal pits are very large and the concavity at the tip of the frontals is not so deep as in *M. muntjac curvostylis*. The nasals are very long and the width of the palate between the last molar is considerably less than in that species. The snout is very long and pointed.

Outside Siamese territory this race has also been recorded from the Northern Shan States and Central Burma.

The general colouration is bright cinnamon rufous and the flanks are scarcely paler than the back. The individual hairs are pale at their bases, which is one of the main points of difference between this species and *Muntiacus muntjac grandicornis* LYDEKKER from Tenasserim, in which the general colouration is tawny ochraceous.

Skull measurements:

Greatest length = 203,0; condylobasal length = 192,0; basilar length = 178,0; zygomatic width = 80,7; least interorbital breadth = 42,5; least postorbital breadth = 60,1; length of nasals mesially = 59,6; length of frontals mesially = 79,0; breadth of palate between last molar = 34,0; distance between lachrymal notch to tip of premaxillare = 110,7; length of upper cheek-teeth = 57,0 mm.

Muntiacus muntjac curvostylis. GRAY.

Plate V. Fig. 5.

♂ Hat Sanuk, near the boundary between Siam and Tenasserim, $^{26}/_1$ 1915. — Nose to vent = 975 mm. — ♀ Hat Sanuk $^{19}/_2$ 1915. — Nose to vent = 1060 mm. — ♀ Hat Sanuk $^{21}/_2$ 1915. — Nose to vent = 1055 mm. — ♀ Hat Sanuk $^{28}/_1$ 1915.

In the parts of the Siamese Malaya visited by the Expedition this race of the Muntjac seemed to be rather common. Like the preceeding species it affects every kind of jungles and was found as well in the mountain forests as in the jungles in the low-lying country near the sea-shore. During daytime it generally keeps to the thickest parts of the dense jungles and is then rather difficult to get. In the afternoon, however, it generally comes down to the salt-licks to drink or to some fruit-bearing trees to eat the fallen fruits, and is then easy to get. During night-time its loud barking note is often heard.

Skull measurements of *M. m. curvostylis*:

	♂	♀	♀	♀
Greatest length	189,1 mm.	199,0 mm.	187,0 mm.	192,0 mm.
Condylbasal length	177,7	187,5	178,7	182,5
Basilar length	165,5	173,6	165,6	169,0
Zygomatic width	—	80,8	78,1	84,1
Least interorbital width	45,1	42,0	38,5	46,5
Length of nasals mesially	51,5	52,0	51,1	45,0
Length of frontals mesially	78,2	77,6	75,0	77,1
Breadth of palate between last molar	33,6	28,7	30,0	29,8
Distance between lachrymal notch to tip of premaxillare	99,0	105,0	100,0	102,0
Length of upper cheek teeth	55,7	58,0	57,1	55,6

Cervus unicolor equinus. Cuv.

♀ Hat Sanuk, near the boundary between Siam and Tenasserim, 27/1 1915.

The Malayan Sambar is generally distributed over the whole country and may be found as well in the low-lying country as among the hills and mountains, though perhaps more common in the latter.

During daytime it most often keeps to very thick forests, and on account of the tangle of vegetation the opportunities for a shot are seldom met with.

During my journey in Northern Siam I several times both saw or heard Sambars rushing off at my approaching, but I never came to a shot.

In the parts of the Siamese Malaya visited by the Expedition Sambars were very common indeed and they occurred both among the mountains along the Tenasserim border and in the country near the shores of the Gulf of Siam.

At the neighbourhood of Hat Sanuk I shot a fine female specimen on the 27th of January. On that day I was to hunt seladangs but unfortunately found no fresh tracks. When we made a short rest in an evergreen jungle one of my native trackers started to imitate the voice of a young Sambar. The note was immediately answered by a deer which in full galopp went right up to us and was shot.

Cervus eldi platyceros. GRAY.

According to the statement of European residents in Chieng Hai, Thamins were said to be not uncommon on the great swampy plains surrounding this small town. The natives in the neighbouring villages also told me that it occurred on several places at the outskirts of Chieng Hai. I myself, however, never came across this deer, nor did I see any tracks which could with certainty be stated as belonging to that species. At the surroundings of Meh Lua I, however, observed several tracks which may have been made by the Thamins.

The type of this species is said to have come from Siam though most certainly not *southern* Siam as stated in the Catalogue of the Ungulate Mammals in the Brit. Mus. Nat. Hist. vol. IV. 1915 p. 105. In the southern parts of Siam the Thamins do not occur at least not much further south than the latitude of Bangkok. Outside Siamese territory it inhabits Cambodia and Hainan, being replaced in Burma by the true *C. eldi eldi*.

***Cervus porcinus annamiticus.* HEUDE.**

The Hogdeer inhabiting Siam belongs to the form which was described by HEUDE under the name of *Hyelaphus annamiticus* (Mém. Hist. Nat. Emp. Chinois, vol. II. 1888 p. 50). This race was founded on specimens from Annam but the range also includes Siam according to LYDEKKER (Cat. Ungulate Mammals, vol. IV. 1915 p. 58).

During my journey I only observed some hogdeers on the grassy plain of Nong Bea in Northwestern Siam, but as I was out hunting for a tiger the deer were not shot though it could have been done easily as they were running up quite close to our elephants.

At the neighbourhood of Chieng Hai, hogdeers are also said to occur on the great plains which surround that place, but during my excursions there I never met with it nor did I see any tracks which could have been stated as belonging to these pretty deers.

In the Eastern parts of the country they are also said to occur at least in the Chantaboon Province, where they are stated as being rather common and hunted on horseback.

***Capricornis sumatrensis milne-edwardsi.* DAVID.**

The distribution of the different species and subspecies of the Goat-Antelopes is still very imperfectly known, and much work is still to be done until this question has been properly settled.

Especially of the Siamese forms we know very little. The latest papers on the subject being that one of POCOCK published in the Journal of the Bombay Natural History Society vol. 22. 1913. p. 296—310 and that one of IRWIN in the Journal of the Natural History Society of Siam vol. I. No. 1, 1914 p. 19—26.

IRWIN, who chiefly discusses the Siamese forms, comes to the conclusion that there are at least two different forms: one being characterized by having rufous coloured legs and the other one having no rufous at all being merely black and grey or white with dirty white legs. According to IRWIN this form is nearest allied to *Capricornis sumatrensis thar* HODGS. previously only known from Nepal, Sikhim and Chumbi. IRWIN further says (tom. cit. p. 22.): »I have never heard of the rufous variety occurring in Siam north of Latitude 12° 40' N.; all the specimens I have seen or heard of from the north of that line have only black and white hairs in their pelts». In this point IRWIN, however, seems to be wrong.

During my stay at Koon Tan a fine specimen was brought to Mr. EISENHOFER's bungalow. The legs up to the knee joints were decidedly rufous. Another specimen shot at the same locality was of the same colour throughout but the horns were different and very short. Unfortunately I did not examine these two animals properly as the lack of literature made this impossible. However, I hope these specimens and perhaps some more collected at the same locality will reach Europe as soon as the war is over, and in a later paper I hope to be able to solve the question about the Serows of Siam.

In the Siamese Malaya, Serows seems to be fairly common in the precipitous limestone mountains near the coast. South of Koh Lak I once had arranged a drive in pursuit of serows and sambars. Unfortunately I myself did not see anything at all, but the Siamese official standing next to me fired a shot at a serow though he missed it. According both to him and some of the beaters, who had seen the animal, it was blackish in colouration without any rufous at all. This statement seems to indicate that it apparently was an animal of the same type as that one recorded by IRWIN from Koh Lak.

Outside the mountain locally known as Sam Roi Yot on about Lat. N. 12° 10' the small island of Koh Koram is situated. This island is said to be inhabited by serows which are stated to be quite easy to get. Unfortunately I was down in the Siamese Malaya during the monsoon time, when it was quite impossible to get out or land on that island and I therefore had to abandon my plans to get one of these fine goats.

Bos bubalus. LINN.

So-called »wild» Water-buffaloes are said to occur in the districts westwards from the town of Raheng as communicated by Mr. G. F. W. ELWES who told me that he had shot some specimens there. As I have already stated in my former paper on the subject I do not consider them as really wild. They have most certainly once been domesticated though they have by some reason escaped from captivity and then run wild.

On the low-lying country at the neighbourhood of the mountain known as Sam Roi Yot (= the mountain with the three hundred peaks) »wild» Water-buffaloes are also said to occur as communicated by Mr. A. J. IRWIN. These animals were stated as being very fierce and even dangerous to the natives.

Bos gaurus readi. LYDEKKER.

Plate I. Fig. 3.

The Seladang or Bison, as it is generally called by the European sportsmen in the Far East, is generally distributed over the whole country except on the Menam plain. They generally keep to the lower hills, but they do not avoid even the higher mountains.

When the rainy season begins they sometimes ascend to the plains to feed on the fresh sprouting grass.

Among the Koon Tan mountains they seemed to be fairly common to count from the numerous tracks met with during my excursions in that neighbourhood. Since my departure from Koon Tan two specimens, a bull and a cow, were shot by a couple of na-

tive hunters sent out by Mr. EISENHOFER on that purpose. Mr. EISENHOFER has then kindly presented the cow to the Royal Natural History Museum in Stockholm, though it has not yet arrived to its destination on account of the war.

In the dense jungles at Hat Sanuk and Hue Sai I several times went out hunting the »Ngoa kating» but I was always unfortunate in my efforts to get one of these fine beasts. On one of my trips to Hat Sanuk I was accompanied by Mr. C. KRAMER and one night, when he was sitting over a saltlick, a fine bull came down to drink. He fired two shot with a 12-bore, but did not get the animal on the spot. Our native hunters were sent out to follow the wounded animal and after about a weeks tracking they found the big bull dead, but it was then of course already putrified and only the skull could be saved. The accompanying photograph illustrates the horns of this fine beast.

The following dimensions of the horns have been kindly communicated by Mr. KRAMER.

From tip to tip in a straight line	=	940 mm.
» » » » along the inner curve	=	1270 »
» » » » » » outer »	=	1420 »

The race inhabiting the Burmese countries and Tenasserim eastwards to the French Indo China has been separated under the above-mentioned name. Southwards in the Malay Peninsula another race occurs to which the name of *Bos gaurus hubbacki* LYDEK- KER has been given. These two races are only slightly differentiated from each other and the exact distribution is still uncertain.

Bos banteng. RAFFL. (subsp?)

The Banteng does not occur in the Malay Peninsula, nor was it found among the mountain forests on the boundary between Siam and Tenasserim on about Lat. N. 12°.

In Northern Siam it occurs here and there, and I sometimes observed its tracks during my excursions. Most common it seems to be along the western border. During my stay at Doi Par Sakeng the late Mr. T. B. CHATTERIS came across a herd of bantengs in a narrow valley near the frontier to Karennee. He fired a shot at a very big cow which got severely wounded. The wounded animal at once separated from the herd and Mr. CHATTERIS followed its tracks for some hours when unfortunately a heavy rain broke out which made further tracking impossible.

In Siam two indifferent races probably occur. The most common is certainly *Bos banteng birmanicus* LYDEKKER (Proc. Zool. Soc. 1898 p. 276—278). In this race the general colour is dark chestnut red, with a large white rump-patch. The head is dirty grey with a light chestnut patch on the nose above the muzzle. The other race has been named *Bos banteng porteri* by LYDEKKER. This race is very dark coloured and spotted closely with small, pure white spots especially on the neck. In this race the horns seem to drop lower on each side of the head. The bases of the horns seems to be more heavily ridged. This may indicate an old individual, but until more material has been available I think its wisest to keep the two »races» separate, though in this paper I have refrained from giving the specimens observed a subspecific name.

Explanation of Plates.

Plate I.

- Fig. 1. Two friends. *Hylobates lar* & *Felis domestica*.
 Fig. 2. *Muntiacus muntjac vaginalis*.
 Fig. 3. Skull of male seladang (*Bos gaurus readi*) shot at Hat Sanuk (Siamese Malaya) by Mr. C. KRAMER.

Plate II.

- Fig. 1. Young of *Ursus tibetanus*.
 Fig. 2. Young of *Ursus tibetanus*.
 Fig. 3. *Macaca andamanensis*.

Plate III.

- Fig. 1. Limestone cliff near Pa Hing, Northern Siam.
 Fig. 2. Hills near Pa Hing, Northern Siam.
 Fig. 3. Salt lick in the evergreen jungles near Hat Sanuk (Siamese Malaya).
 Fig. 4. Hat Sanuk during the dry season.
 Fig. 5. View at the middle course of the Meh Ping river (Northern Siam).
 Fig. 6. The southern bay at Koh Lak (Siamese Malaya.)

Plate IV.

- Fig. 1. *Paradoxurus hermaphroditus*. ♂. Hue Sai (Siamese Malaya) ¹⁸/₁ 1915.
 Fig. 2. *Paradoxurus hermaphroditus laotum*. ♂. (Type.) Chieng Hai, Northern Siam. ¹⁵/₈ 1914.
 Fig. 3. *Paradoxurus hermaphroditus*. ♂. Hue Sai (Siamese Malaya) ¹⁵/₁ 1915.
 Fig. 4. *Paradoxurus hermaphroditus laotum*. ♂. (Type.) Chieng Hai, Northern Siam. ¹⁵/₈ 1914.
 Fig. 5. *Paradoxurus hermaphroditus laotum*. ♂. (Type.) Chieng Hai, Northern Siam. ¹⁵/₈ 1914.
 Fig. 6. *Paradoxurus hermaphroditus*. ♂. Hue Sai (Siamese Malaya) ¹⁸/₁ 1915.

[All the Figures are in Natural Size.]

Plate V.

- Fig. 1. *Tragulus kanchil affinis*. ♂. Hat Sanuk (Siamese Malaya) ²⁴/₂ 1915. [¹/₅ Nat. Size.]
 Fig. 2. *Tragulus rarus*. ♂. Teluk Anson, Perak. F. M. S. ²⁰/₄ 1915. [¹/₅ Nat. Size.]
 Fig. 3. *Tragulus rarus*. ♂. Teluk Anson, Perak. F. M. S. ²⁰/₄ 1915. [¹/₅ Nat. Size.]
 Fig. 4. *Tragulus kanchil affinis*. ♂. Hat Sanuk (Siamese Malaya) ²⁴/₂ 1915. [¹/₅ Nat. Size.]
 Fig. 5. *Muntiacus muntjac curvostylis*. ♀. Hat Sanuk (Siamese Malaya) 1915. [¹/₂ Nat. Size.]
 Fig. 6. *Muntiacus muntjac vaginalis*. ♀. Koon Tan (Northern Siam) 1914. [¹/₂ Nat. Size.]

Plate VI.

- Fig. 1. *Sciurus caniceps concolor*. ♀. Aur Geding, Sungei Lebih, Kelantan. ⁵/₈ 1899.
 Fig. 2. *Sciurus caniceps concolor*. ♀. Aur Geding, Sungei Lebih, Kelantan. ⁵/₈ 1899.
 Fig. 3. *Sciurus helgei*. ♂. (Type.) Koh Lak, Siamese Malaya. ²⁹/₁₁ 1914.
 Fig. 4. *Sciurus helgei*. ♂. (Type.) Koh Lak, Siamese Malaya. ²⁹/₁₁ 1914.
 Fig. 5. *Rattus concolor*. ♀. Teluk Anson, Perak. F. M. S. ¹³/₅ 1915.
 Fig. 6. *Rattus sakeratensis*. ♀. (Type.) Sakerat Eastern Siam, January 1912.
 Fig. 7. *Rattus ephippium*. Baram River, Borneo.
 Fig. 8. *Rattus concolor*. ♀. Teluk Anson, Perak F. M. S. ¹³/₅ 1915.
 Fig. 9. *Rattus sakeratensis*. ♀. (Type.) Sakerat, Eastern Siam, January 1912.
 Fig. 10. *Rattus ephippium*. Baram River, Borneo.

[All the Figures are in Natural Size]

Tryckt den 2 februari 1917.

Uppsala 1917. Almqvist & Wiksells Boktryckeri-A.-B.

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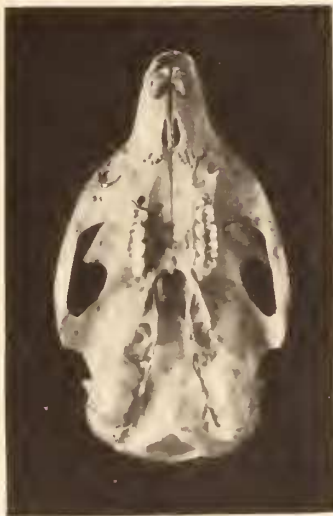




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